**BUREAU OF HIGHWAYS**
**REQUEST FOR PROPOSAL**
**for**
**QUALIFICATIONS BASED SELECTION FOR PREQUALIFIED SERVICES**

The Michigan Department of Transportation (MDOT) is seeking professional services for the project contained in the attached scope of services.

If your firm is currently prequalified for this type of work and you are interested in providing services, please indicate your interest by submitting a Proposal. The Proposal must be submitted in accordance with the latest "Vendor Selection Guidelines for Service Contracts", available on the MDOT website.

**Since there are three separate projects and three separate scopes of work, the three most qualified vendors will be selected to perform the engineering services described within the scopes. Due to the consistency of the scope of work between the three projects, each vendor will submit only ONE proposal for the three projects.**

**Within the Understanding of Service Section, the Vendors shall separate their write up, as they feel appropriate, to include a discussion on each of the three projects. Adjustments to the Organization Chart can be made to reflect the same.**

For efficiency sake, we are asking that the vendor firm provide **5** paper copies of the Proposal to the MDOT project manager named in the attached scope of services.

Mark Sweeney, P.E.
18101 West Nine Mile Road
Southfield, MI 48075
sweeneym@michigan.gov

These copies must be received by **May 26th, 2006 no later than 4:00 p.m.** Fax and electronic copies are not acceptable.

In addition, provide one unbound copy to:

Regular Mail:
Secretary, Operations Contract Support
Michigan Department of Transportation
P.O. Box 30050
Lansing, MI 48909

OR

Overnight Mail:
Secretary, Operations Contract Support
Michigan Department of Transportation

425 W. Ottawa
Lansing, MI 48933

This copy is to be received within three working days after the due date and time specified above. Please do not deliver in person.

Any questions relative to the scope of services must be submitted by e-mail to the MDOT project manager. Any questions must be asked at least three working days prior to the due date and time specified above. All questions and their answers will be placed on the MDOT website as soon as possible after receipt of the questions. The names of vendors submitting questions will not be disclosed.

For a cost plus fixed fee contract, the selected vendor must have a cost accounting system to support a cost plus fixed fee contract. This type of system has a job-order cost accounting system for the recording and accumulation of costs incurred under its contracts. Each project is assigned a job number so that costs may be segregated and accumulated in the vendor's job-order accounting system.

The selection team will review the information submitted and will select the firm considered most qualified to perform the engineering services based on the proposals. The selected vendor will be contacted to confirm capacity. Upon confirmation, that firm will be asked to prepare a priced proposal. Negotiations will be conducted with the firm selected.

**The maximum allowable pages for the proposal are limited to the selected Tier shown on MDOT Form 5100B, which is posted with this RFP. Page limits apply to the entire proposal. The number of pages per section is the decision of the creator of the proposal. Include in proposal only those items that are checked by the MDOT project manager on form 5100B.**

MDOT is an equal opportunity employer and MDOT DBE firms are encouraged to apply. The participating DBE firm, as currently certified by MDOT's Office of Equal Opportunity, shall be listed in the Proposal.

The scopes of services is attached to this solicitation.

**PROJECT LOCATION: M-85 from Schaefer Highway to Oakwood Boulevard in the City of Detroit, Wayne County**
**CONTROL SECTION, JOB NUMBER: CS 82073 – JN 80011C, 79724D**
**DESCRIPTION OF WORK: Roadway and Bridge Rehabilitation**

## I Primary Prequalification Classification:

Roadway Rehabilitation & Rural Freeways

## II Secondary Prequalification Classification:

Short and Medium Span Bridges
Railroad Bridges
Specialty Walls and Slopes
Municipal Utilities
Pump Station Design
Landscape Architecture
Right-Of-Way Surveys
Road Design Surveys
Structure Surveys
Photogrammetric Control Surveys
Photogrammetry
Asbestos Investigations
Geotechnical Engineering Services
Maintaining Traffic Plans & Provisions
Pavement Marking Plans
Permanent Non-Freeway Traffic Signing Plans
Traffic Signal Design
Traffic Operations Studies
Utility Coordination
Subsurface Utility Engineering

The anticipated start date of the service is July 24, 2006.
The anticipated completion date for the service is November 7, 2008.

DBE Requirement: 10%

Send Proposals to:
Mark A. Sweeney – Project Manager
MDOT – Metro Region Office
18101 West Nine Mile Road
Southfield, Michigan 48075

**SCOPE OF DESIGN SERVICES**
**CS 82073 - JN 80011C, JN 79724D**
**M-85 from Schaefer Highway to Oakwood Boulevard**
**City of Detroit, Wayne County**

## I. SCOPE OF VENDOR DUTIES

Complete the design of this project including, but not limited to the following:

A. This project shall follow the findings contained within the Final Scoping Package for this project (the Final Scoping Package was compiled as part of the EPE portion of this project).

B. Participate with and incorporate findings from separate evaluation efforts (performed by others) concerning the Capacity, Public Involvement, Historical and Context Sensitive Design Issues and Parking.

C. Conduct Value Planning workshop.

D. Perform design surveys. **Please know that a design survey for this project has already been performed.** This task has been included should additional survey information be required.

E. Provide additional survey information (determine bridge footing elevations and locate underground storage tanks, coal chutes and basements within the project limits).

F. Provide additional S.U.E. information (Subsurface Utility Engineering). (See Attachment B). **Please know that a S.U.E. Contract was included as part of the EPE portion of this project.** This task has been included should additional S.U.E. information be required.

G. Prepare a drainage study and related design.

H. Prepare required plans, typical cross-sections, details, and specifications required for design and construction.

I. Compute and verify all plan quantities.

J. Prepare staging plans and special provisions for maintaining traffic during construction.

K. Prepare pavement marking plans and special provisions.

L. Prepare traffic signal plans and special provisions.

M. Prepare permanent signing plans and special provisions for non-freeway sign upgrading.

N. Prepare Municipal Utility plans and special provisions (to include public water, lighting (PLD) and sanitary services).

O. Prepare pump station plans and special provisions.

P. Prepare landscaping / enhancement plans and special provisions.

Q. Provide base sheets to the MDOT MITS Center. Receive MDOT's mark-up drawings, pay items and special provisions, and prepare necessary MITS plans as appropriate. The Vendor will be responsible for all CADD and SAPW work.

R. Prepare Right-Of-Way and Marked Final Right of Way plans, as required, to locate, verify and purchase real estate and/or obtain construction access permits for this project.

S. Perform a Crash Analysis and Safety Review for this project, as well as for the included bridge project, 3 bridges. (See Attachment E).

T. Prepare the accident analysis report for this project and for the included bridge projects (3 bridges). A separate report may be required for the roadway, for each of the structure locations, and for each of the design elements included within the design exception requests.

U. Prepare a capacity analysis, as well as provide user costs.

V. Provide bridge plans and special provisions - as part of this project, 3 bridges will be designed by the Vendor (See Attachment C).

W. As part of this project, the design of additional bridges may be added at a later date, which will be designed by the Vendor. These additional structures may be associated with different job numbers (still to be determined), but will be included within this selection. In the event that the bridges are added, the Vendor will be notified accordingly with Scopes of Work provided at that time.

X. Perform Utility Coordination for the project (See Attachment D).

Y. Coordinate this project with the affected communities and business groups.

Z. Coordinate with the M-85 bascule bridge over the Rouge River project currently being studied for replacement and realignment. Construction of the bridge and associated approach work from Bayside Avenue to Miller Road may run concurrently with this reconstruction project.

AA. Coordinate with the additional reconstruction projects along M-85 from Miller Road to Springwells Street and Springwells Street to Clark Street. Construction of these sections of M-85 may run concurrently or consecutively.

BB. The Vendor may be asked to break this project into, multiple independent construction packages. Each package will be let under separate job numbers (to be determined at a later date), possibly with separate lettings. The Vendor will be responsible for preparing all of the necessary plans, special provisions and details that each of the construction packages will require.

CC. Provide solutions to any unique problems that may arise during the design of the project.

DD. The Vendor may be required to provide Design Services during the construction phase of this project. If Construction Assistance is required, then a separate authorization for those services will be issued.

## II. PROJECT LOCATION

The project is located along M-85, between Schaefer Highway and Oakwood Boulevard, in the City of Detroit, Wayne County. The project length is approximately 1.12 miles.

## III. PROJECT DESCRIPTION

This project consists of all work related to designing this reconstruction project, including but not limited to the following:

A. Perform grading and earthwork.
B. Reconstruct the road as per the MDOT Pavement Design.
C. Perform shoulder upgrades, as is required.
D. Install / replace curb and gutter.
E. Upgrade geometrics to current standards
F. Perform crown and superelevation modifications.
G. Upgrade existing underclearances.
H. Perform design for 3 bridges, including special provisions (See Attachment C).
I. Potentially perform design for additional bridges, to be determined at Scope Verification.
J. Adjust and upgrade the existing drainage system.
K. Separate the proposed storm sewer system from the existing combined sewer system.
L. Adjust and replace existing signs.
M. Adjust and upgrade signals.
N. Perform guardrail upgrades or design, as is required.
O. Clean existing drainage structures and drainage structure leads, as is required
P. Install, if not already present, sidewalk ramp terminals at all sidewalk street intersection locations.

As part of this project, 3 bridges will be designed by the Vendor. The Vendor will also be responsible for all the required plans and special provisions for the additional staging, maintaining traffic, pavement markings, signals, signing, and bridge-related road work (bridge approaches, guardrail, etc.) that these bridges will require (See Attachment C).

The bridge locations include, but are not limited to, the following:

- R01 of 82073: M-85 (Fort St.) over N&W R.R.
- S01 of 82073: M-85 (Fort St.) over Pleasant St.
- S02 of 82073: M-85 (Fort St.) over Sanders St.

The Vendor should be aware that these structures are classified as historic.

Work shall conform to current MDOT, FHWA, and AASHTO practices, guidelines, policies, and standards (i.e., Road Design Manual, Standard Plans, Roadside Design Guide, A Policy on Geometric Design of Highways and Streets, Michigan Manual of Uniform Traffic Control Devices, etc.).

## IV. PROJECT CONSTRUCTION COST

A. The estimated cost of construction is:

| | | |
|---|---|---|
| Roadway Rehabilitation (JN 80011C) | Programmed Cost: | $10,710,850 |
| Bridge Rehabilitation (JN 79724D) | Programmed Cost: | $ 8,257,584 |
| | **CONSTRUCTION TOTAL** | **$18,968,434** |

The above construction total is the amount of funding programmed for this project. The Vendor is expected to design the project within the programmed amount.

**If at any time the estimated cost of construction varies by more than 5% of the current programmed amount, then the Vendor will be required to submit a letter justifying the changes in the construction cost estimate.**

## V. PROJECT SCHEDULE

The scheduled Vendor's plan completion date for this project is January 7, 2008. The Vendor shall use the following events to prepare the proposed implementation schedule as required in the Guidelines for the Preparation of Responses on Assigned Design Services Contracts. These dates shall be used in preparing the Vendor's Monthly Progress Reports.

| Target Date | Task # | Description |
|---|---|---|
| | 3330 | Conduct Design Survey |
| | 3340 | Conduct Structure Survey |

| | | |
|---|---|---|
| | | Submit Survey Final Deliverables |
| | 3360 | Prepare Base Plans |
| | | Submit Base Plans |
| | 3361 | Submittal of Preliminary Right-Of-Way Plans |
| | 3370 | Prepare Structure Study |
| | 3380 | Review Base Plans (by MDOT) |
| | 3390 | Develop the Construction Zone Traffic Control Concepts |
| | 3510 | Perform Roadway Geotechnical Investigation (to determine bridge footing elevations and locate underground storage tanks, coal chutes and basements within the project limits) |
| | 3522 | Conduct Drainage Study, Storm Sewer Design, and Structural Best Management Practices (BMP) |
| | 3530 | Conduct Structure Foundation Investigation |
| | 3535 | Conduct Structure Review for Architectural and Aesthetic Improvement |
| | | Submit Plans for Utility Review (approximately 50% complete) |
| | | Submit Environmental Permit Information (6 months prior to the Plan Completion Date) |
| | 3540 | Develop Construction Zone Traffic Control Plan |
| | 3551 | Perform/Review Traffic Signal Operations Plan |
| | 3552 | Develop Preliminary Permanent Pavement Marking Plan |
| | 3553 | Develop Preliminary Non-Freeway Signing Plan |
| | 3570 | Prepare Preliminary Structure Plans |
| | 3580 | Develop Preliminary Plans |
| | | Submit Preliminary Plans |
| | 3581 | Final Right-Of-Way Plans |
| | 4120 | Obtain Preliminary Title Commitments |
| | 4130 | Prepare Marked Final R.O.W. Plans |
| | 4140 | Prepare Property Legal Instruments |
| | 3590 | Review Preliminary Plans (The Plan Review) (by MDOT) |
| | 3650 | Railroad Coordination |
| | 3670 | Develop Municipal Utility Plans (impacted by road work) |
| | 3672 | Development Special Drainage Structures Plans |
| | 3675 | Develop Electrical Plans (impacted by road work) |
| | 3680 | Obtain Required Municipal Utility Permits (impacted by road work) |
| | 3821 | Complete/Review Traffic Signal Plans |
| | 3822 | Complete Permanent Pavement Marking Plan |
| | 3823 | Complete Non-Freeway Signing Plan |
| | 3830 | Complete the Construction Zone Traffic Control Plan |
| | 3840 | Develop Final Plans and Specifications |
| | 3850 | Develop Structure Final Plans and Specifications |
| 11/12/07 | | Submit Final Plan/Proposal Package to MDOT for final review |
| | 3870 | Hold Omissions/Errors Check (OEC) Meeting |
| 12/3/07 | | Omissions/Errors Check (OEC) Meeting (approximate date) |

| | |
|---|---|
| 01/07/08 | Vendor's Plan Completion: Final Construction Plan/Proposal package with recommendations incorporated to MDOT (two weeks after OEC Meeting) |
| 10/3/08 | Final Deliverables to MDOT |

## VI. PAYMENT SCHEDULE

Compensation for this Scope of Design Services shall be on an actual cost plus fixed fee basis.

## VII. MONTHLY PROGRESS REPORT

On the first of each month, the Vendor Project Manager shall submit a monthly project progress report to **Mark Sweeney**, Project Manager, **Ishrat Jahan**, the Road Vendor Coordinator and **Pablo Rojas**, the Bridge Vendor Coordinator. The monthly progress report shall follow the guidelines in Attachment H.

## VIII. FORMAT

The Vendor shall deliver all computer files associated with the project in their native format (spreadsheets, CADD files, GEOPAK files, etc. ) on DVD, CD and/or uploaded to ProjectWise, as directed by the MDOT Project Manager. All CADD/GEOPAK files shall be created and identified with standard MDOT file names as shown in Appendix A of the Road Design Manual. It is the Vendor's responsibility to obtain up to date Microstation (V8) and GEOPAK seed/configuration files necessary to comply with MDOT's CADD standards which are posted to the bulletin system. When the use of GEOPAK road design software is necessary to develop plans all pay items shall be placed into the CADD file using GEOPAK's Design and Computation Manager so that Quantity Manager can be used to transfer pay item information to SAPW/Trns*port. Any CADD/GEOPAK files that do not conform to MDOT standards will be returned to the Vendor for correction at the Vendor's expense.

Proposal documents shall be submitted both in their native format with standard naming conventions and as individual Adobe PDF files. To provide text search capabilities, the PDF files shall be created by converting the native electronic files to PDF. Scanning to PDF is discourages except in instances when it is necessary to capture a legally signed document or when a hard copy version of the document is all that exists.

Plan files shall be submitted both in their native .dgn format with standard naming conventions and plotted into a combined Adobe PDF file. Plan sheets shall be plotted to Adobe PDF with full text search and level on/off capabilities in both scalable full size (24" x 36") and scalable half size (11" x 17") formats including plan sheets and profile sheets will be required. The project will require a ratio (scale) of 1:40; scale and layout of sheets to be discussed with the Road Vendor Coordinator.

A half size title sheet shall be plotted, stamped, and signed, then scanned for inclusion with the Adobe PDF set. The original title sheet shall be sent to the MDOT Project Manager.

Stand Alone Proposal Estimator's Worksheet (SAPW) shall be used to generate the .txt and .csv files necessary for import into the Trns*port bid letting software. The SAPW files shall be transmitted electronically by the method specified by the MDOT Project Manager.

Other plan sheets that are required for this project shall be completed by the Vendor. These include, but are not limited to the following plan sheets:

A. The title sheet. MDOT will provide a map of the area on a disk in our workstation format. If the map is not available, MDOT will provide a map that could be used. The Vendor shall be responsible for any revisions to the title sheet and the title sheet and map shall meet MDOT format and layout guidelines.

B. Note Sheet.

C. Typical Cross-Sections.

D. Project-specific Special Details.

E. Construction staging and traffic control plans.

F. Detail grade sheets for major intersections, ramp gores and critical areas.

G. Paving details.

H. Pavement marking plan(s).

I. Culvert detail sheet(s).

J. Vicinity and drainage map sheet.

K. Alignment sheet.

L. Witness and benchmark sheet(s).

M. Soil boring log sheet(s).

All plans, special provisions, estimates, and other project related items shall meet all MDOT requirements and detailing practices (i.e., format, materials, symbols, patterns, and layout) or as otherwise directed by the Project Manager.

All plans, specifications, and other project related items are subject to review and approval by MDOT.

## IX. UTILITIES

The Vendor shall be responsible for obtaining and showing on the plans the location and names of all existing utilities within the limits of the project. In the course of resolving utility conflicts, the Vendor shall make modifications to the plans or design details and provide assistance as directed by the MDOT Utility Permits Engineer and/or Project Manager. The Vendor shall attend any utility meetings called to ensure that the concerns are addressed on the plans involving utilities. The Vendor shall assist in the review of utility permit requests to ensure compatibility with the project. In addition, the Vendor is responsible for the tasks detailed in Attachment D.

## X. TRAFFIC CONTROL AND MDOT PERMITS

The Vendor shall be responsible for all traffic control required to perform the tasks as outlined in this Project Scope of Design Services.

The Vendor shall be responsible for obtaining up-to-date access permits and pertinent information for tasks in MDOT Right-Of-Way (ROW). This information can be obtained through Pam Sebenick, Utilities/Permits Section, Real Estate Division at (517) 373-7680.

## XI. PRE-QUALIFICATION AND SUBCONTRACTING OF CONTRACT WORK

Any task(s) for which the Vendor is not prequalified must be completed by a Subcontractor that is pre-qualified for that task(s). Any questions regarding prequalification should be directed to Phil Brooks, Prequalification Manager, at (517) 335-2514.

The Department's prequalification is not a guarantee or warranty of the subcontractors' ability to perform or complete the work subcontracted. The Vendor remains fully responsible to the Department for completion of the work according to the contract as if no portion of it had been subcontracted.

All subcontractor communications with the Department shall be through the Vendor to the MDOT Project Manager. This requirement may be waived if a written communication plan is approved by the MDOT Project Manager.

The Department may direct the immediate removal of any subcontractor working in violation of this subsection. Any costs or damages incurred are assumed by the Vendor by acceptance of the contract. It is further understood that the Vendor's responsibilities in the performance of the contract, in case of an approved subcontract, are the same as if the Vendor had handled the work with the Vendor's own organization.

## XII. VENDOR RESPONSIBILITIES (GENERAL)

1. Meet with the MDOT Project Manager to review project, location of data sources and contact persons, and review relevant MDOT operations. The Vendor shall review and clarify project issues, data needs and availability, and the sequence of events and team meetings that are essential to complete the design by the project plan completion date. Attention shall be given to critical target dates that may require a large lead time, such as geotechnical requirements, ROW submittal dates, Railroad coordination requirements, utility conflict resolution, local agency meetings, etc.

2. Maintain a Design Project Record which includes a history of significant events (changes, comments, etc.) which influenced the development of the plans, dates of submittals and receipt of information.

3. **P/PMS TASK 3330 - CONDUCT DESIGN SURVEY**
   Perform surveys as necessary to design this project (See Attachment A). The Vendor's survey shall be as complete and accurate as necessary to:
   1. Calculate and verify plan quantities to the Vendor's standards.
   2. Locate and lay out the future construction of this project.
   3. Perpetuate affected property controlling corners for monument preservation.

   As part of the design proposal, the Vendor shall present a detailed survey work plan for review, evaluation and acceptance by the MDOT Project Manager. A final survey report for review and approval by the MDOT Survey Unit **is** required. Acceptance of the survey by MDOT Design Survey does not in any way relieve the Vendor of responsibility and liability for the content of the survey.

4. There shall be a preliminary survey review to this project. This review shall be for horizontal and vertical control. The Vendor shall provide copies of all field work notes as well as least square adjustment analysis to the MDOT Project Manager as soon as it is available.

5. The Vendor will be responsible for providing elevation view sketches at both sides of each and every bridge in the project area. The sketch must show the elevation of the roadway at 2 feet inside of the inside edge of metal and 2 feet outside of the outside edge of metal, as well as the interior lane lines, crown point, and shoulder edges. The corresponding elevation of the structure underclearance immediately overhead must also be shown. Both directions of M-85 will be handled separately and similarly, as will the cross roads. All underclearance sketches must be shown looking up station.

6. **P/PMS TASK 3340 - CONDUCT STRUCTURE SURVEY**
   See Attachment C as well as Vendor Manual Attachment I for details.

7. **P/PMS TASK 3360 - PREPARE BASE PLANS**
   See Vendor Manual Attachment I for details.
   Note: A meeting may be scheduled by the MDOT Project Manager after MDOT's review to discuss comments.

8. **P/PMS TASK 3361 - SUBMITTAL OF PRELIMINARY RIGHT-OF-WAY PLANS**
See Vendor Manual Attachment I for details.

9. **P/PMS TASK 3370 - PREPARE STRUCTURE STUDY**
See Attachment C as well as Vendor Manual Attachment I for details.

10. **P/PMS TASK 3380 – REVIEW BASE PLANS (BY MDOT)**
See Vendor Manual Attachment I for details.

11. **P/PMS TASK 3390 - DEVELOP THE CONSTRUCTION ZONE TRAFFIC CONTROL CONCEPTS**
See Vendor Manual Attachment I for details.

12. **P/PMS TASK 3510 – PERFORM ROADWAY GEOTECHNICAL INSPECTION (to determine bridge footing elevations and locate underground storage tanks, coal chutes and basements within the project limits)**
See Vendor Manual Attachment I for details.

13. Develop the bridge items required for this project according to the enclosed Attachment C.

14. Perform storm sewer design calculations, including appropriate outlets and energy dissipation if necessary, as outlined in the MDOT Drainage Manual. Detention may be required. Detention pond design must meet, but is not limited to, local agency storm water regulations and Michigan Department of Environmental Quality water quality permit requirements. Submit all design calculations, drainage maps, and proposed profiles to the MDOT Project Manager for review prior to the Plan Review.

15. The Vendor shall identify the locations of any water main and/or sanitary sewer on the project.

16. If water mains and/or sanitary sewers are present within the project limits, the Vendor shall evaluate the necessity for the relocation of water mains and sanitary sewers, in accordance with Design Division's Informational Memorandum #441B and #402R dated April 13, 1992. The Vendor shall submit a report to Steven J. Urda, Design Engineer - Municipal Utilities, Design Division for review and concurrence. A copy of the report shall be sent to the Project Manager. **If relocation is necessary and water main and/or sanitary sewer work is not part of the Scope of Work, contact the MDOT Project Manager immediately.**

17. **P/PMS TASK 3522 – CONDUCT DRAINAGE STUDY, STORM SEWER DESIGN, AND STRUCTURAL BEST MANAGEMENT PRACTICES (BMP)**
See Vendor Manual Attachment I for details.

18. **P/PMS TASK 3530 - CONDUCT STRUCTURE FOUNDATION INVESTIGATION**
See Attachment C as well as Vendor Manual Attachment I for details.

19. **P/PMS TASK 3535 – CONDUCT STRUCTURE REVIEW FOR ARCHITECHTURAL AND AESTHETIC IMPROVEMENT**
See Attachment C as well as Vendor Manual Attachment I for details.

20. **P/PMS TASK 3540 - DEVELOP CONSTRUCTION ZONE TRAFFIC CONTROL PLAN**
See Vendor Manual Attachment I for details.

21. **P/PMS TASK 3551 - PERFORM/REVIEW PRELIMINARY TRAFFIC SIGNAL OPERATIONS PLAN**
See Vendor Manual Attachment I for details.

22. **P/PMS TASK 3552 - DEVELOP PRELIMINARY PERMANENT PAVEMENT MARKING PLAN**
See Vendor Manual Attachment I for details.

23. **P/PMS TASK 3553 - DEVELOP PRELIMINARY NON - FREEWAY SIGNING PLAN**
See Vendor Manual Attachment I for details.

24. **P/PMS TASK 3570 - PREPARE PRELIMINARY STRUCTURE PLANS**
See Attachment C as well as Vendor Manual Attachment I for details.

25. **P/PMS TASK 3580 - DEVELOP PRELIMINARY PLANS**
See Vendor Manual Attachment I for details.

26. **P/PMS TASK 3581 - FINAL RIGHT-OF-WAY PLANS**
See Vendor Manual Attachment I for details.

27. **P/PMS TASK 4120 - Obtain Preliminary Title Commitments**
See Vendor Manual Attachment I for details.

28. **P/PMS TASK 4130 - Prepare Marked Final R.O.W. Plans**
See Vendor Manual Attachment I for details.

29. **P/PMS TASK 4140 - Prepare Property Legal Instruments**
See Vendor Manual Attachment I for details.

30. **P/PMS TASK 3590 - REVIEW PRELIMINARY PLANS (THE PLAN REVIEW) (BY MDOT)**
See Vendor Manual Attachment I for details.

31. **P/PMS TASK 3650 – RAILROAD COORDINATION**
See Vendor Manual Attachment I for details.

32. **P/PMS TASK 3670 - DEVELOP MUNICIPAL UTILITY PLANS (impacted by road work)**
See Vendor Manual Attachment I for details.

33. **P/PMS TASK 3672 – DEVELOPMENT OF SPECIAL DRAINAGE STRUCTURES PLANS**
See Vendor Manual Attachment I for details.

34. **P/PMS TASK 3675 - DEVELOP ELECTRICAL PLANS (impacted by road work)**
See Vendor Manual Attachment I for details.

35. **P/PMS TASK 3680 – OBTAIN REQUIRED MUNICIPAL UTILITY PERMITS (impacted by road work)**
See Vendor Manual Attachment I for details.

36. **P/PMS TASK 3821 - COMPLETE/REVIEW TRAFFIC SIGNAL PLANS**
See Vendor Manual Attachment I for details.

37. **P/PMS TASK 3822 - COMPLETE PERMANENT PAVEMENT MARKING PLAN**
See Vendor Manual Attachment I for details.

38. **P/PMS TASK 3823 - COMPLETE NON-FREEWAY SIGNING PLAN**
See Vendor Manual Attachment I for details.

39. **P/PMS TASK 3830 - COMPLETE THE CONSTRUCTION ZONE TRAFFIC CONTROL PLAN**
See Vendor Manual Attachment I for details.

40. **P/PMS TASK 3840 - DEVELOP FINAL PLANS AND SPECIFICATIONS**
See Vendor Manual Attachment I for details.

41. **P/PMS TASK 3850 - DEVELOP STRUCTURE FINAL PLANS AND SPECIFICATIONS**
See Attachment C as well as Vendor Manual Attachment I for details.

42. **P/PMS TASK 3870 - HOLD OMISSIONS/ERRORS CHECK (OEC) MEETING**
See Vendor Manual Attachment I for details.
The interval for plotting cross-sections and developing the grade book shall be 50 feet. The intervals for critical areas shall be 25 feet.

43. **P/PMS TASK 5010 - CONSTRUCTION PHASE ENGINEERING AND ASSISTANCE**
The Vendor may be required to provide Design Services during the construction phase of this project. If Construction Assistance is required, then a separate authorization for those services will be issued.

44. If excavation is required, submit the excavation locations which may contain contamination. The Project Manager can then proceed in requesting a Preliminary Project Assessment (PPA).

45. The Vendor shall be required to prepare and submit a CPM network for the construction of this project. See Attachment G for details.

46. **CRASH ANALYSIS:** Perform a crash analysis and determine the recommended countermeasures, (See Attachment E for details) This shall include, but shall not be limited to, performing the crash analysis, which shall include the last 3 years of reliable data for the analysis period. If there has been a fatality within those 3 years, then the analysis shall incorporate the last 7 years of reliable data. The Vendor will be furnished 3 years of data. If 7 years of data is required, the Vendor shall request, in writing, the additional crash data from the MDOT Project Manager (requests may take up to two weeks from the date the request is received to fill).

47. Determine countermeasures based on the crash analysis and provide a detail drawing explaining each recommendation. Determine the construction cost estimate for each countermeasure using MDOT Pay Items. Summarize the countermeasures for each crash pattern individually.

48. Review and document the roadside safety related items (i.e. guardrail, barriers, attenuators, etc.) which need to be modified or included in the project. Documentation to include location, existing type and condition, and the recommended treatment.

49. **DRAINAGE STUDY**. Perform drainage study. See Attachment F for details.

50. The Vendor representative shall record and submit type-written minutes for all project related meetings to the MDOT Project Manager within two weeks of the meeting. The Vendor shall also distribute the minutes to all meeting attendees. MDOT will provide and distribute official meeting minutes for the Base Plan Review Meeting (if meeting necessary) and The Plan Review Meeting.

51. Attend information meetings (i.e., public hearings, open houses, etc.) with the public and public officials to assist in responding to concerns and questions. May require the preparation of displays such as maps, marked-up plans, etc.

52. Prepare and submit any information, calculations, hydraulic studies, or drawings required by MDOT for acquiring any permit (i.e. NPDES, DEQ, etc), approvals (i.e. county drain commission) and related mitigation. MDOT will submit permit requests.

53. Attend any project-related meetings as directed by the MDOT Project Manager.

54. The Vendor shall assist in the review of driveway and utility permit requests, incorporate the information in the design plans, and respond within 2 weeks from receipt of the permit.

55. The MDOT Project Manager shall be the official MDOT contact person for the Vendor **and shall be made aware of all communications regarding this project**. The Vendor must either address or send a copy of all correspondence to the MDOT Project Manager. This includes all Subcontractor correspondence and verbal contact records.

56. The Vendor shall contact the MDOT Project Manager whenever discoveries or design alternatives have the potential to require changes in the scope, limits, quantities, costs, or Right-Of-Way of the project.

57. Submit all design files electronically at all submittals.

## XII. MDOT RESPONSIBILITIES (GENERAL)

A. Schedule and/or conduct the following:
   1. Project related meetings
   2. The Plan Review
   3. ~~Utility Meetings~~ (see Attachment D)
   4. Quantity summary sheets and final item cost estimates
   5. Packaging of plans and proposal

B. Furnish Special Details and pertinent reference materials.

C. Furnish prints of an example of a similar project and old plans in the area, if available.

D. Supply information on existing pavement structure as necessary.

E. ~~Coordinate any necessary utility relocation(s)~~. (see Attachment D)

F. Furnish pavement core information (Vendor shall place information on plan sheets).

G. Furnish soil boring information as necessary (Vendor shall place information on plan sheets).

H. Pavement design.

I. Furnish diskette of file and instructions for the MDOT Stand Alone Estimator's Worksheet (SAEW).

## XII. VENDOR PAYMENT

All invoices/bills for services must be directed to the Department and follow the 'then current' guidelines. The latest copy of the "Professional Engineering Service Reimbursement Guidelines for Bureau of Highways" is available on MDOT's Bulletin Board System. This document contains instructions and forms that must be followed and used for invoicing/billing; payment may be delayed or decreased if the instructions are not followed.

Payment to the Vendor for Services rendered shall not exceed the "Cost Plus Fixed Fee Not to Exceed Maximum Amount" unless an increase is approved in accordance with the contract with the Vendor. All invoices/bills must be submitted within 14 calendar days of the last date of services being performed for that invoice.

Direct expenses will not be paid in excess of that allowed by the Department for its own employees. Supporting documentation must be submitted, with the invoice/bill, for all billable expenses on the Project. The only hours that will be considered allowable charges for this contract are those that are directly attributable to the CE activities of this Project. Hours spent in administrative, clerical, or accounting roles for billing and support, are not considered allowable hours; there will be no reimbursement for these hours.

Reimbursement for overtime hours will be limited to time spent on this project in excess of forty hours per week. Any variations to this rule should be included in the price proposal

**ATTACHMENT A**
**CS 82073 - JN 80011C, JN 79724D**
**M-85 from Schaefer Highway to Oakwood Boulevard**
**City of Detroit**
**Wayne County**

## SURVEY SCOPE OF WORK

Survey Limits: As needed for Design, Right-Of-Way, and Construction

**NOTES**: The Vendor shall discuss the scope of this survey with an MDOT Region Surveyor or Lansing Design Support Area Surveyor before submitting a proposal.

The Vendor surveyor must contact the Region or TSC Traffic and Safety Engineer for work restrictions in the project area prior to submitting a proposal.

A **detailed Survey Work Plan** with a **spreadsheet estimate** of hours by specific survey task such as traversing, leveling, mapping, etc., **must** be included in the project proposal.

It is the responsibility of the Professional Surveyor to safeguard all corners of the United States Public Land Survey System, published Geodetic Control and any other Property Controlling corners that may be in danger of being destroyed by the proposed construction project.

**GENERAL REQUIREMENTS:**

1. Surveys must comply with **all Michigan law** relative to land surveying.

2. Surveys must be done under the **direct supervision** of a Professional Surveyor licensed to practice in the State of Michigan.

3. Work in any of the following categories of survey: Road Design, Bridge, Hydraulic, Right-of-Way, and/or Ground Control (Photogrammetric) must be completed by a survey firm which is pre-qualified by MDOT.

4. Surveys must meet all requirements of the Michigan Department of Transportation (MDOT) Design Surveys *Standards of Practice* dated April 1, 1998. Please contact the Design Survey office to clarify any specific questions regarding these standards.

5. Vendors must obtain all necessary permits required to perform this survey on any public and/or private property, including an up-to-date permit from the MDOT Utilities Coordination and Permits Section.

6. The Vendor must contact any and all Railroads prior to commencing field survey on railroad property. The cost for any permit, flaggers and/or training that is required by the Railroad

will be considered as a direct cost, but only if included in the Vendor's proposal.

7. The Vendor must adhere to all applicable OSHA and MIOSHA safety standards, including the appropriate traffic signs for the activities and conditions for this job.

8. Vendors are responsible for a comprehensive and conscientious research of all records, including MDOT records, essential for the completion of this project.

9. Measurements, stationing, recorded data, and computations must be in international feet, unless specified otherwise by the Project Manager.

10. It is appropriate to utilize the same horizontal and vertical datums used in recent and/or future projects in the "corridor." Otherwise, coordinate values shall be based upon the Michigan State Plane coordinate system NAD83 if available within four miles. If not, a local project coordinate control system is acceptable. All elevations must be based upon the North American Vertical Datum of 1988 (NAVD88) if control is available within four miles. If not, existing MDOT plan datum is acceptable. **Other datums must be approved by the MDOT Design Division, Supervising Land Surveyor.** A preliminary submittal of the adjusted Horizontal and Vertical control for the project may be submitted to the MDOT Survey Vendor Coordinator or Region Surveyor for review and acceptance as soon as it is available.

11. The survey notes must be submitted to the Design Survey Unit in 10" by 12" divided portfolios with flap covers. As many portfolios should be used as are needed to contain all of the required documents and Compact Discs (CD's). **Duplicate CD's must be included in the portfolio, with one set labeled "Region Surveyor".**

12. Each portfolio must be labeled on the outside as in the following example:

    Survey Notes for:
    Route, Location and Project Limits [I-94 under Beaubien Street]
    Control Section [S06 of 82024]  Job Number [45197D]  Date [of submittal]
    By [Name of Firm]
    Michigan Professional Surveyor [ ]
    License # [ ]

13. Each submittal is to be divided into five sections. These sections are to be labeled as follows: **Administrative, Alignment, Control**, **Property**, **Mapping**, and **Miscellaneous**.

    a. The Administrative section will include the following items: a completed copy of the MDOT Form 222(3/99) entitled "SURVEY NOTES: RECEIPT AND TRANSMITTAL"; the limits of the survey and original survey scope as determined by the Vendor Surveyor and Design Engineer; a complete synopsis of the survey **that shall include, but not be limited to** horizontal and vertical control datums used; methodology; a complete discussion of government corners recovered, perpetuated or otherwise used as part of the survey; problems encountered; and a statement from the Vendor surveyor supervising the

project certifying compliance with Michigan Department of Transportation (MDOT) Design Surveys *Standards of Practice* dated April 1, 1998; as well as documentation of all project specific meetings and /or conversations with MDOT Survey personnel.

b. The Alignment section will contain a sketch and/or drawing of the alignment, witnesses and stationing of alignment points set or found; an explanation of how the alignment was determined, whether best fit or legal; and all supporting documentation. The alignment data must be submitted both hardcopy and electronically.

c. The Control section must contain the data collected and copies of all research documents used to establish the **horizontal and vertical** reference systems for the project, and must include a thorough written explanation describing how the systems were established. This section should also contain a complete list of control coordinates, control traverse raw data, least squares analysis for both traverse and benchmarks, a separate listing of control point coordinates and witnesses for mapping and construction staking of the project. A complete Benchmark list with datum, station and offset, elevation, and description of each benchmark shall also be included. This information must be submitted in hardcopy and ASCII electronic file format on Compact Discs (CD's). Also, a sketch of the control traverse, showing any ties (government corners, property, alignment, etc.) shall be included in this section.

d. The Property section contains all information that is utilized regarding the real property affected by the project. It also includes any and all property ties necessary to establish the Right of Way and/or acquire property if required by the project. This may include copies of all **recorded** Land Corner Recordation Certificates for the government corners used or reestablished, recorded plats, recorded certified surveys, tax maps, tax descriptions, and adjacent/riparian owners, as well as surveyed coordinates.

e. The Mapping section must consist of electronic data only. The final planimetric mapping file must be submitted in .PDF format. Raw survey data is not required.

f. The Miscellaneous section contains any information not included in the previous sections. The project surveyor's report should specify any items included in this section.

14. Each category of survey must be packaged separately (i.e., Bridge surveys separate from Road surveys and Hydraulic surveys). All sheets in a portfolio must be marked with the control section and job number. CD's must be labeled with the control section, job number, data type and file names.

15. The Vendor representative shall record and submit typewritten minutes for all project related meetings to the MDOT Project Manager within two weeks of the meeting. The Vendor shall also distribute the minutes to all meeting attendees.

16. The MDOT Project Manager is the official contact for the Vendor. The Vendor must send a copy of all project correspondence to the MDOT Project Manager. The MDOT Project Manager shall be made aware of all communications regarding this project. Any survey

related questions, in regard to this project, should be directed to a Survey Vendor Coordinator or MDOT Region Surveyor.

At the completion of this survey for this project, all field survey notes, all electronic data, and all research records obtained for this project will be considered the property of MDOT and **must be sent to** the MDOT, Design Division, Supervising Land Surveyor, P.O. Box 30050, Lansing, MI 48909. Please use MDOT's Form 222(3/99) entitled "SURVEY NOTES: RECEIPT AND TRANSMITTAL" for all transmittals. A copy of this transmittal form must also be sent to the MDOT Project Manager for Design.

## WORK RESTRICTIONS

The Vendor must call the MDOT Region or TSC Traffic and Safety Engineer before beginning work to inform him of surveying activity in the area. The Vendor is advised to discuss Traffic Control scenarios with the Traffic and Safety Engineer prior to submitting a proposal.

Traffic shall be maintained by the Vendor throughout the project in accordance with Sections 812 and 922 of the Standard Specifications for Construction, 2003 edition, and any supplemental specifications. All traffic control devices shall conform to the current edition, as revised, of the Michigan Manual of Uniform Traffic Control Devices (MMUTCD).

The Vendor must use MDOT standard lane closure "maintaining traffic" typical for any and all lane closures and shoulder closures. Typical MDOT traffic control diagrams are available on line at http://www.mdot.state.mi.us/tands/plans.cfm.

## FIELD SURVEY

The purpose of the field survey is to obtain all information and data required by the project design engineer, to leave control in the field for future construction staking, and to provide a sufficient history of the area to enable the MDOT Design Survey Unit to perform dependable surveys in the future. The Vendor surveyor must discuss the scope of this survey with the project design engineer before initiating any work on this project. Notes of this meeting and a detailed Survey Work Plan with an estimate of hours broken down by specific survey task must be submitted to the MDOT Project Manager and Survey Vendor Coordinator within two weeks of this meeting.

## GOVERNMENT CORNERS

Any PLSS corners within the project limits must be recovered or established and tied to the project coordinate system.

All PLSS corners must be recorded in accordance with PA 74 of 1970, as amended and all applicable administrative rules. A copy of each recorded Land Corner Recordation Certificate must be submitted to the MDOT Design Survey Office as part of the final report. All PLSS corners located in hard surface roads must be protected by a monument box, regardless of impending construction. The Vendor shall provide to the Survey Project Manager a list of any

affected Government or Property Controlling Corners in the detailed work plan for discussion or approval.

The Vendor surveyor must contact the County Remonumentation Representative prior to beginning work on the project to inform him of proposed corner perpetuation activities, and to obtain information pertinent to PLSS corners and/or property controlling corners affected by project construction.

**FINAL REPORT**: DELIVERABLES

The final report for this project shall include the following:

1. In the first pocket of the first portfolio, MDOT's Form 222(3/99) entitled "SURVEY NOTES: RECEIPT AND TRANSMITTAL."

2. The project's Professional Surveyor's Report on company letterhead consisting of the following:

    a. A comprehensive report, written and signed by the project's Professional Surveyor, of the work performed on this project.

    b. The source and the methods used to establish the project horizontal coordinates, elevations, and the alignment(s) for this project.

    c. A detailed explanation of anything discovered during the survey of this project that may create a problem for the designer or another surveyor.

3. Documentation of horizontal and vertical datum sources.

4. Least squares analysis for horizontal and vertical control.

5. Coordinate and witness lists for the horizontal alignment ties, government corners, traverse control points, and bench marks.

6. A sketch of the alignment(s) with reference points and angle of crossing (if appropriate), stationing, horizontal coordinates, curve data, and a station equation to existing stationing if different. **The alignment must be clearly noted as legal or best-fit.**

7. Control sketch with control points, government corners and alignment plotted.

8. All field survey notes, all electronic survey data files, all calculation sketches, and all research records obtained for this project. All electronic survey data files shall be submitted on Compact Discs only, specifically labeled. No paper copy of raw survey data is required.

9. Legible copies of all **recorded** Land Corner Recordation Certificates (with Liber and Page number) filed or used for the performance of this survey, and for any PLSS corners,

including Property Controlling Corners, which may be disturbed by construction.

10. It is the responsibility of the Vendor to insure that all electronic files submitted to MDOT conform to the required format and all documents are legible.

11. The Vendor must organize and label the various sections of the portfolios as required by the MDOT Design Surveys *Standards of Practice* dated April 1, 1998.

12. It is not necessary to submit hardcopy mapping data in the survey portfolio for a Vendor survey/Vendor design in the same authorization. Final planimetric map must be submitted in .PDF format.

13. It is desirable to limit paper and to include as much electronic data as possible on Compact Disc, including scanned items, to facilitate future electronic storage and transmission of survey data. **Duplicate CD's must be included in the portfolio, with one set labeled "Region Surveyor".**

**ATTACHMENT B**
**CS 82073 - JN 80011C, JN 79724D**
**M-85 from Schaefer Highway to Oakwood Boulevard**
**City of Detroit, Wayne County**

# SCOPE OF SERVICES
# SUBSURFACE UTILITY ENGINEERING (SUE)

**SUE** - A branch of engineering practices that involves managing certain risks associated with utility mapping at appropriate quality levels, utility coordination, utility relocation design and coordination, utility condition assessment, communication of utility data to concerned parties, utility relocation cost estimates, implementation of utility accommodation policies, and utility design. (ASCE Standard 38-02)

ASCE Standard 38-02, "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data" shall be used as the standard for all MDOT SUE work. Depending on the project, Vender may be asked to provide some or all utility quality levels A through D.

**Utility Quality Levels** - A professional opinion of the quality and reliability of utility information. Such reliability is determined by the means and methods of the professional. Each of the four existing utility data quality levels is established by different methods of data collection and interpretation. (ASCE Standard 38-02)

SUE can be applied to varying degrees on a project depending on the situation. A project may include one or multiple utility quality levels depending on the risk factor associated with each subsurface utility. Subsurface utility data evaluation is an important part of the utility coordination and SUE process. The following section provides issues to consider when determining what specific quality level to choose. The following items are not intended to be comprehensive or exclusive; they are merely set forth as a general outline of the work that is expected.

**PRIOR TO SUBMISSION OF THE VENDER'S PRICE PROPOSAL AND SCOPE OF WORK, THE VENDER SHALL MEET WITH THE MDOT PROJECT MANAGER, DESIGN TEAM AND TSC UTILITY COORDINATOR TO FINALIZE THE EXTENT THAT SUE IS USED.**

**Utility Quality Level D** - Information derived from existing records or oral recollections. (ASCE Standard 38-02)

The Vender shall –

1. Solicit utility information as outlined in section 9.02.04 (Plan Distribution Process for Utility Coordination), Chapter 9 of the Michigan Road Design Manual.

MDOT shall -

1. Provide a preliminary list of utility companies and address located within the project limits. This list may not be 100% accurate and/or complete. The Vender is responsible to identify all known and unknown utility facilities within the project limits.

**Utility Quality Level C** - Information obtained by surveying and plotting visible above-ground utility features and by using professional judgment in correlating this information to quality level D information. (ASCE Standard 38-02)

The Vender shall –

1. Survey visible above-ground utility facilities and correlate this information with existing utility records.

MDOT shall –

1. Provide a preliminary list of utility companies and address located within the project limits. This list may not be 100% accurate and/or complete. The Vender is responsible to identify all known and unknown utility facilities within the project limits.

2. Provide Vender with utility responses gathered during the base plan distribution.

**Utility Quality Level B** - Information obtained through the application of appropriate surface geophysical methods to determine the existence and approximate horizontal position of subsurface utilities. Quality level B data should be reproducible by surface geophysics at any point of their depiction. This information is surveyed to applicable tolerances defined by the project and reduced onto plan documents. (ASCE Standard 38-02)

The Vender shall –

1. Obtain all necessary permission or permits from city, county, municipality, railroad or other entity to allow the Vender to work on existing streets, roads, and private property for the purpose of marking, measuring, and recording the location of existing underground utilities.

2. Coordinate with utility companies and the appropriate governmental jurisdictions in researching the location(s) of existing utilities. Secure all "as built" plans, plats, and other necessary data as supplied by the utility companies. While obtaining the information from the utility companies or governmental jurisdictions, ascertain the age, the size, the material type, etc.

3. Designate, record, and mark the horizontal location of all existing underground utilities

and their major laterals to existing buildings. Storm sewers are not to be designated unless specifically required by MDOT. Utility depictions shall be in accordance to the conventions indicated in MDOT's English Road Design Manual. CADD files shall be submitted to MDOT on CD, in CADD format, utilizing MDOT's current version of Microstation. All survey work will be the responsibility of the Vender. Horizontal surveying of underground utilities shall be accurate to plus or minus one foot.

4. Provide all necessary equipment and support personnel, including surveying capability, to secure the data outlined in this section.

MDOT shall -

1. Provide survey control for the purposes of tying the horizontal position of the designated utilities to the State Plane Coordinate System and the project limits, including side roads. If available, MDOT will also furnish highway plans showing topography, horizontal alignments, etc. in an electronic or paper form.

2. Provide a preliminary list of utility companies and address within the project limits. This list may not be 100% accurate and/or complete. The Vender is responsible to identify all known and unknown utility facilities within the project limits.

3. If requested, provide a letter of introduction to utilities, to assist the Vender in establishing the need for their presence in a particular area.

**Utility Quality Level A** - Precise horizontal and vertical location of utilities obtained by the actual exposure (or verification of previously exposed and surveyed utilities) and subsequent measurement of subsurface utilities, usually at a specific point. Minimally intrusive excavation equipment is typically used to minimize the potential for utility damage. A precise horizontal and vertical location, as well as other utility attributes, is shown on plan documents. Accuracy is typically set to 15-mm (approximately 5/8") vertical and to applicable horizontal survey and mapping accuracy as defined or expected by the project owner. (ASCE Standard 38-02)

The Vender shall -

1. Review plans furnished by MDOT showing areas requiring test holes within the project limits. Recommend changes to MDOT's location plan based upon SUE best practices. Obtain additional company records as required.

2. Obtain all necessary permission or permits from city, county, municipality, railroad or other entity to allow the Vender to work on existing streets, roads, and private property for the purpose of marking, measuring, and recording the location of existing underground utilities.

3. Comply with any and all State law requirements for notification prior to excavation. In conformance with Public Act 53 of 1974, Michigan's one call damage prevention system

"Miss Dig", the Vender is required to phone 1-800-482-7171 a minimum of three full working days (excluding Saturdays, Sundays, and Holidays) prior to excavating near a utility.

4. Coordinate with utility company inspectors as required.

5. Neatly cut and remove existing pavement with the cut area not to exceed 225 square inches. Excavate using a method enabling vertical and horizontal exploration through this cut.

6. Excavate test holes in such a manner as to prevent any damage to wrappings coatings, or other protective coverings, such as vacuum excavation, hand digging, etc.

7. Be responsible for any damage to the utility during excavation.

8. Backfill with approved material around utility structure.

9. Furnish, install, and color code a permanent above ground marker (i.e. P.K. nail, peg, steel pin, or hub) directly above the centerline of the structure and record the elevation of the marker.

10. Provide a permanent restoration of the pavement within the limits of the original cut at the time of backfill. If the test hole is excavated in an area other than the roadway pavement, the area disturbed shall be restored to equal or better than the condition before excavation.

11. Tie all vertical elevations to a minimum of two checked benchmarks or available datum. The accuracy of these turns shall be in accordance with established surveying practices. Utility locations shall be submitted to MDOT on CD, in CADD format, utilizing MDOT's current version of Microstation. Vertical surveying of underground utilities shall be accurate to 5/8".

12. Maintain the quality of the permanent pavement restoration for 3 years.

MDOT shall -

1. Provide survey control for the purposes of tying the horizontal and vertical position of the designated utilities to the State Plane Coordinate System and the project limits, including side roads. If available, MDOT will also furnish highway plans showing topography, horizontal alignments, etc. in an electronic or paper form.

2. Furnish preliminary highway plans showing areas requiring test holes.

3. If requested, provide a letter of introduction to utilities, to assist the Vender in establishing the need for their presence in a particular area.

## Permits and Traffic Control

An annual permit (MDOT form 2205-B) and certificate of insurance (MDOT form's 2020 & 2216) shall be required from all SUE Venders. These shall be submitted to MDOT's Lansing Real Estate Division. An advance notice of permitted activity (MDOT form #2204) shall be submitted to the appropriate TSC office not less than five days prior to working within the right of way.

All maintaining traffic provisions of the permit shall be followed, as well as conformance to the requirements of Part 6 (C) of the Michigan Manual of Uniform Traffic Control Devices. If the site conditions are not addressed in the Michigan Manual of Uniform Traffic Control Devices, the Vender shall submit a written traffic plan to the TSC for approval. The Vender shall be responsible for providing all materials, equipment and personnel necessary for the maintenance of traffic. This includes, but is not limited to; temporary traffic control signs, channelizing devices, arrow panels, traffic barriers (i.e. temporary concrete barriers if required), impact attenuators, flaggers, temporary pavement markings, etc. and all other equipment and/or labor necessary to effectively implement the approved maintenance of traffic plan.

Due to the amount of traffic on certain highways, the Vender may be required to work off peak hours. In addition, the Vender shall not work on weekends, national holidays, state holidays, or the days proceeding said holidays without the written permission from the jurisdictional region/TSC office.

## Data Management

Data management involves assembling and presenting designating and locating information in a format compatible to MDOT's current version of Microstation.

## Time to Complete Work

The Vender shall complete and deliver SUE services within a mutually agreed upon time after the notice to proceed is given.

## Deliverables and Certification

1. The accuracy of the final deliverables shall be certified by a licensed professional civil engineer and/or licensed professional surveyor. Both of these professionals must be registered in the State of Michigan. The Vender shall be responsible for the accuracy of all information presented to MDOT.

2. Copies of all deliverables shall be sent to all appropriate MDOT personnel. This may include the Project Manager, TSC Utility Coordinator and the Lansing Utility

Coordination and Permits Section.

3. Provide the following test hole information (via spreadsheet format) to MDOT on CD, in CADD format, utilizing MDOT's current version of Microstation. A paper copy shall also be provided as a final deliverable.

a. Elevation of top and/or bottom of utility tied to datum of the furnished plan.

b. Elevation of existing grade over the utility at the test hole.

c. Horizontal location referenced to project coordinate datum.

d. Outside diameter of pipe or width of duct banks and configuration of non-encased multi-conduit systems.

e. Utility structure material composition and condition, when possible.

f. Size, type and owner of utility facility.

**ATTACHMENT C**
**CS 82073 - JN 80011C, JN 79724D**
**M-85 from Schaefer Highway to Oakwood Boulevard**
**City of Detroit**
**Wayne County**

## BRIDGE SCOPE OF WORK

The Vendor shall be responsible for the following:

1. A complete design for the following:

- **R01 of 82073: M-85 (Fort St.) over N.&W. R.R.**
The work for this structure shall consist of total bridge replacement

- **S01 of 82073: M-85 (Fort St.) over Pleasant St.**
The work for this structure shall consist of total bridge replacement.

- **S02 of 82073: M-85 (Fort St.) over Sanders St.**
The work for this structure shall consist of bridge removal and fill in spans.

The scheduled Plan Completion date for this project is June 7, 2007 with a Letting date of December 7, 2007 to coincide with Road JN 80011 of which this job will be packaged with.

| Target Date | Task # | Description |
|---|---|---|
| | | Notice to Proceed (approximate date) |
| | | Kick-Off Meeting with Vendor Project Manager |
| | 3340 | Conduct Structure Survey |
| | 3370 | Prepare Structure Study |
| | | Submit Structure Study to MDOT |
| | 3530 | Conduct Structure Foundation Investigation |
| | 3535 | Conduct Structure Review for Architectural and Aesthetic Improvements |
| | 3570 | Prepare Preliminary Structure Plans |
| | | Submit Preliminary Structure Plans to MDOT |
| | 3590 | Review Preliminary Plans (Hold The GI Meeting) |
| | 3850 | Develop Structure Final Plans and Specifications |
| | | Submit Final Plan/Proposal Package to MDOT for Final Review |
| | 3870 | Omissions/Errors Check (OEC) Meeting (approx. date) |
| | | Submit Final Construction Plan/Proposal package with recommendations incorporated to MDOT |
| | | Final Deliverables to MDOT |

2. Preparation of both contract plans, and bid item quantities.

3. Preparation of any specifications and/or special provisions required to supplement MDOT's Standard Specifications for construction.

4. Soil borings of sufficient depth and number and a geotechnical analysis to perform the foundation design. For scope of work statement for geotechnical services, see Appendix 5.01.07(6) MDOT Bridge Design Manual.

5. Preparation of permit requests. (MDOT will submit these)

6. Necessary contacts with concerned agencies: eg. MDEQ, municipalities, utilities, railroad, State Historic Commission. All contacts are to be documented. MDOT is to receive copies of minutes, record of conversations or memos documenting all contacts.

7. Meet with the MDOT Project Manager to review project, location of data sources and contact persons, and review relevant MDOT operations. The Vendor shall review and clarify project issues, data need and availability, and the sequence of events and team meetings that are essential to complete the design by the project plan completion date. Attention shall be given to critical target dates that may require a large lead time, such as geotechnical requirements, ROW submittal dates, Railroad coordination requirements, utility conflict resolution, local agency meetings, etc.

8. Solutions to any unique problems: eg: utility interference, staging for part width construction.

9. With concurrence from the MDOT Region Traffic Engineer, provide plans and specifications for maintaining traffic during construction.

10. With concurrence from the MDOT Region Traffic Engineer, provide traffic control to permit the work described in Item 4.

Plans shall be prepared and submitted for MDOT review as follows:

1. A study showing the conceptual design. This shall be accompanied by a rough (square foot) estimate of cost. Consider other alternatives, at the study phase, which may deviate from the "Description of Work" to determine the most cost effective option. The vertical underclearance must be considered. A design exception, if required, should be submitted to MDOT with the structure study.

2. Preliminary plans consisting of a General Plan of Site and a General Plan of Structure of the proposed work and Log of Boring. Preliminary Plans shall be accompanied by an estimate of cost based on the quantities of major pay items shown on the plans.

3. Prefinal plans consisting of final plans that are approximately 90% complete and any special provisions and supplemental specifications that may be required.

4. Final plans and Contract Quantities and any special provisions or supplemental specifications that may be required.

5. Preparation of both contract plans and bid item quantities using standard English units, as applicable. Stand-Alone Estimator's Worksheet (SAEW) shall be used to generate a bid item quantity database in both test (TXT) and comma separated value (CSV) formats.

6. Provide solutions to any unique problems that may arise during the design of this project or that may affect the constructability of this project.

7. The Vendor may be required to provide Design Services during the construction phase of this project. If Construction Assistance is required, then a separate authorization for those services will be issued.

8. Preparation of any specifications and/or special provisions required to supplement MDOT's Standard Specifications for Construction.

9. The Vendor representative shall record and submit type-written minutes for all project related meetings to the MDOT Project Manager within two weeks of the meeting. The Vendor shall also distribute the minutes to all meeting attendees.

10. The MDOT Project Manager shall be the official MDOT contact person for the Vendor. The Vendor must either address or send a copy of all correspondence to the MDOT Project Manager. This includes all Subcontractor correspondence and verbal contact records. The MDOT Project Manager shall be made aware of all communications regarding this project.

11. The Vendor shall contact the MDOT Project Manager whenever discoveries or design alternatives have the potential to require changes in the scope, limits, quantities, costs, or Right-Of-Way of the project.

The Vendor is not authorized to proceed with Preliminary Plans until he receives MDOT approval of the Study. Neither are they authorized to proceed with Final Plans until notified that the FHWA has approved Preliminary Plans.

Work shall conform to current MDOT, FHWA, and AASHTO practices, guidelines, policies, and standards (ie. Roadside Design Guide, A Policy on Geometric Design of Highways and Streets, Michigan Manual of Uniform Traffic Control Devices, etc.). All submittals to MDOT shall meet the attached quality assurance document. The Vendor shall maintain office records, submit monthly progress reports, and submit MDOT vouchers with their billings. The Vendor is advised that MDOT considers plans 5% complete upon approval of the Study, 30% complete when the Preliminary Plans are distributed, and 95% complete when Final Plans are submitted for review.

The Vendor shall be responsible for showing on the plans the location and names of all existing

utilities within the limits of the project. MDOT shall provide the Vendor with all utilities information. In the course of resolving utility conflicts, the Vendor shall make modifications to the plans or design details and provide assistance as directed by the MDOT Utility Permits Engineer and/or Project Manager. The Vendor shall attend any utility meetings called to ensure that the concerns are addressed on the plans involving utilities. The Vendor shall assist in the review of utility permit requests to ensure compatibility with the project. For additional Vendor responsibilities concerning utility coordination, see Attachment D.

All submittals to MDOT shall be dated and identified by structure number, control section, job number including phase, MDOT contract number, route and location. A file containing project related correspondence, design, and any information resulting from research shall be submitted to MDOT with the final mylars.

**ATTACHMENT D**
**CS 82073 - JN 80011C, JN 79724D**
**M-85 from Schaefer Highway to Oakwood Boulevard**
**City of Detroit**
**Wayne County**

## UTILITY COORDINATION SCOPE OF WORK

For the purpose of this scope "utility coordination" means the Vendor shall participate in all stages of the Department's utility coordination process. It is the intent of this scope that the Vendor selected as a result of this solicitation employ qualified, competent, and experienced personnel to provide the services set forth herein.

The Vendor selected shall be capable of providing the following services pertaining to utility coordination work, including, but not limited to:

1. Identification of existing/proposed utility owners and their facilities.
2. Resolution of conflicts between utility facilities and proposed construction.
3. Documentation of utility company activities.
4. Evaluation and certification of utility relocation schedules for compatibility to the Department's project schedule.

### GENERAL REQUIREMENTS

The Vendor is responsible for taking the necessary steps to insure appropriate utility coordination for the project. The Vendor is expected to participate in all stages of the MDOT utility coordination process, including but not limited to: scope meetings, design meetings, pre-advertisement meetings, pre-construction meetings, field inspections, utility permit reviews, plan reviews and construction phase services. In addition, the Vendor shall provide the following services:

1. Perform subsurface utility engineering (SUE) according to the scope of work that is part of this contract (see Attachment B for details). SUE deliverables are to be included in the proposed schedule.
2. Schedule and conduct utility meetings, as necessary, to resolve conflicts between utility facilities and proposed construction. Moderate and record meeting minutes, distribute to all in attendance plus the appropriate MDOT Region/TSC Utilities/Permits Engineer and the MDOT Project Manager. The meetings, as a minimum will identify conflicts, develop utility relocation schemes, discuss possible design modifications, review the schedule of MDOT construction activities, and develop a coordinated utility activity schedule. Include resolution of all utility conflicts and utility coordination needs in the proposed project schedule.
3. Provide bi-weekly status reports to the appropriate MDOT Region/TSC Utilities/Permits Engineer, MDOT Project Manager and the MDOT Lansing Utilities-Permits Office and any other appropriate personnel as directed by the MDOT Project Manager, Mark Sweeney. The report, at a minimum, should display the control

section, project number, project location and description, report date, status of each utility and date information is expected back or when action is to be taken. Develop and maintain a status report (ie. Spreadsheet, log, etc.) regarding the project's utility status. Depending on the project, these status reports may be reduced to monthly, at the request of the Project Manager.

4. Conduct or participate in meetings convened for the purpose of utility betterments (ie. new water main and communication facilities, etc.). Develop corridor schemes and utility construction schedules.
5. Provide technical assistance to MDOT's Design Division and design vendors regarding utility relocations and project impacts. Assure that all proposed utility relocation work, either private or municipal force account work, is compatible with the proposed project and meets MDOT and other applicable standards.
6. Review utility relocation plans for compatibility with the proposed MDOT project. Confirm that all necessary utility relocation permits are submitted to the appropriate MDOT Region/TSC Utilities/Permit Engineer for issuance. Follow-up with utility companies to ensure that their utility relocations are progressing and will not adversely affect the project's schedule.
7. Prepare a Notice to Bidders and any necessary, Utility Coordination Clauses. These need to be submitted to the appropriate MDOT Region/TSC Utilities/Permits Engineer by a deadline to be determined by the MDOT Project Manager.
8. The Vendor may be required to provide Design Services during the construction phase of this project, including utility alignment staking and inspection. If Construction Assistance is required, then a separate authorization for those services will be issued.

**PLAN DISTRIBUTION AND UTILITY INFORMATION PROCURMENT**

The Vendor will be required to distribute plans on an as needed basis to the utility companies. At a minimum the following distributions shall take place:

1. The Vendor shall verify that base plans have been sent to utility companies within the project area. This will consist of an informational letter and two sets of preliminary plans (some companies may require four sets), describing the scope of the project. Initial contact should be made with all utility companies that may have facilities in the project area. Four to six weeks should be allowed for utility companies to respond back with one set of marked plans showing their facilities, copies of their "As Built" plans, or written confirmation that they have no facilities in the project area. This information will then be forwarded to the Design Project Manager.
2. Collect and compile utility company responses from each utility company. Follow up with non responsive utility companies to ensure a response is received. Establish design contacts and if different, construction contacts for the project. Review the plan note sheets and verify with the utility company that the utility company names, addresses, contacts and phone numbers are accurate.
3. Distribute Department plans at approximately 50 percent completion. These plans should have the utility locations plotted and provide sufficient detail for utility companies and the utility coordinator to determine conflicts (ie: storm sewer design).

The Department's standard plan distribution letter, authorizing utility companies to begin preliminary engineering and also notifying the utility company of their responsibility to relocate facilities under Act 368, P.A. of 1925, needs to be included with this plan distribution.

4. Copies of any correspondence sent to any utility company should be sent to the appropriate MDOT Region/TSC Utilities/Permits Engineer, MDOT Project Manager and the MDOT Lansing Utilities-Permits Office and any other appropriate personnel unless otherwise directed.

**PERMIT REVIEWS**

Review utility relocation plans and new permit applications for compatibility with the proposed MDOT project. Confirm that all necessary utility relocation permits are submitted to the appropriate MDOT Region/TSC Utilities/Permits Engineer for issuance. To ensure that utility relocations are progressing and will not adversely affect the project's schedule, follow up with the appropriate utility companies.

**REIMBURSABLE UTILITY RELOCATIONS**

Ensure that eligible reimbursable utility relocations, under Federal-Aid Policy Guide 23 CFR 645A and 645B and MDOT Utility Accommodation Policy are identified. Confirm that the utility companies submit the necessary information (ie. Permit applications, property rights, estimates, etc.) as to meet the aforementioned guidelines to the appropriate MDOT Region/TSC Utilities/Permits Engineer for processing and authorization.

**DESIGN ANALYSIS AND RECOMMENDATIONS**

When the Vendor has obtained all necessary utility information, the Vendor shall determine to what extent the proposed roadway and/or bridge improvements will impact the existing utilities. The Vendor shall prepare a report outlining avoidance alternates, required adjustments, relocations, and cost estimates to perform those relocations.

**STAKING, PERMIT INSPECTION AND CONSTRUCTION PHASE SERVICES**

The Vendor may be requested to provide any needed alignment staking for utility relocations. Staking shall be consistent with the project's survey control. The Vendor will be responsible for the accuracy, per applicable survey standards, when performing survey work. The Vendor performing any surveys must be on the Department's pre-approved surveyors list.

The Vendor may be asked to oversee and inspect utility relocations. Reports of this activity and the Department's Permit Inspection Report (Form #2213) will need to be sent to the appropriate Region/TSC Utilities/Permits Engineer.

Construction phase services may be requested. This may include attending the preconstruction meeting and presenting the utility coordination work. It also may involve working with the Department's Resident Engineer and utility company to resolve utility conflicts discovered

during construction. If Construction Assistance is required, then a separate authorization for those services will be issued.

## CERTIFICATION

This certification will include all necessary copies of correspondence and will be signed by a duly authorized representative of the firm. After certification, the project files will be forwarded to the appropriate MDOT Region/TSC Utilities/Permits Engineer. The Vendor will certify to the MDOT Region/TSC Utilities/Permits Engineer the following:

1. All utility work has been completed or that all arrangements have been made for it to be undertaken and completed as required for proper coordination with the projects construction schedule.
2. Plans were sent to all utility agencies, responses were received, and no utility relocation is required.

## DEPARTMENT RESPONSIBILITIES

1. The MDOT Region/TSC Utilities/Permits Engineer or appropriate representative will notify the Vendor when to proceed with work by issuance of a work authorization. Work authorizations shall identify the project's location, scope, and required "due dates" to complete the utility coordination.
2. Provide the Vendor, when appropriate, survey control to be used for any required surveying the Vendor may need to perform.
3. Provide a preliminary list of utility companies within the project limits. This list may not be 100% accurate and/or complete. The Vendor is responsible to identify all known and unknown utility facilities within the project limits.
4. Provide the Vendor with any appropriate Department form letters.
5. The Department shall have the authority to suspend the work, in full or in part, for such period or periods as may be deemed necessary due to conditions that are considered unfavorable work performance, or for the failure on the part of the Vendor to comply with any or all provisions of the contract. Such suspension shall be ordered in writing, giving in detail the reasons for the suspension.

**ATTACHMENT E**
**CS 82073 - JN 80011C, JN 79724D**
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## CRASH ANALYSIS REPORTS

The Vendor shall provide MDOT with a Crash Analysis Report, which shall detail the safety performance of the project location (includes not only the mainline, but all ramps, major and minor intersections, and crossovers within the project limits), and provide detailed graphic depiction of countermeasures, and cost/benefit analysis for crash concentration locations.

The Crash Analysis Report shall, at a minimum, compare the project location features (mainline, ramps, major intersections, minor intersections and crossovers) to regional averages, identify crash concentration locations, examine crash concentration locations for crash patterns and provide countermeasures for correctable crash patterns. The Vendor shall combine a thorough review of computer-based crash records with field reviews of the roadway's characteristics (geometric and operational features shall be specifically noted), to identify crash concentration locations. The Vendor shall provide a Draft Crash Analysis Report and upon review and comment by MDOT, the Vendor shall make any changes identified and submit a Final Crash Analysis Report.

The Vendor shall at a minimum review and analyze the most recent three years of MDOT crash data. If there is a fatality within those three years, the Vendor shall review and analyze an additional 7 years of crash data. For the analysis, the Vendor shall stratify the data by location and the crash data shall also be aggregated by similar roadway segment characteristics. The Vendor shall quarry SEMCOG to determine regional crash averages which will provide a normative measure of comparison to aid in the identification of crash concentration locations.

The Vendor shall identify crash concentration locations and determine crash patterns. Based on the crash patterns identified for each crash concentration location the Vendor shall develop proposed crash countermeasures. The countermeasures shall be graphically depicted, to scale, with sufficient detail to determine the countermeasures impact to the existing roadway and the proposed roadway improvement.

The countermeasures may range from simple sign / marking / signal modifications up through substantial reconstruction. The Vendor shall present countermeasures stratified into short and long-term solutions. The Vendor shall provide a construction cost estimate for each countermeasure using MDOT Pay Items and shall clearly identify any Right-Of-Way impacts a countermeasure may have. The Vendor shall provide a full cost/benefit analysis for each countermeasure. The Vendor shall also evaluate the crash impacts on design exceptions sought.

**ATTACHMENT F**
**CS 82073 - JN 80011C, JN 79724D**
**M-85 from Schaefer Highway to Oakwood Boulevard**
**City of Detroit**
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## SCOPE OF WORK FOR DRAINAGE STUDY

The Vendor is to conduct a site investigation of the drainage within the limits of the project. The purpose of this study is to determine where hydraulic analyses and/or surveys are required. If further hydraulic analyses and/or surveys are required, then MDOT will issue a separate authorization for those services.

Work Steps:

1. Prepare a typed report summarizing the drainage affected by the project. For every culvert carrying natural drainage within the MDOT Right-Of-Way, provide the following information:

    a. Stream name
    b. Exact location of the culvert, including Section, Town, Range, and Township
    c. Size, type, and condition of culvert
    d. Any evidence of scour or erosion
    e. Any evidence that the structure is undersized
    f. Any county drains
    g. Photographs of the upstream face, downstream face, looking upstream, and looking downstream, as well as any drainage structures, buildings, or farmland that may affect or be affected by the culvert
    h. Drainage area, including delineation on a USGS quadrangle map (or local contour map, if more up-to-date)
    i. Type of work proposed, including existing and proposed lengths

2. The report must include any other effects on the drainage; for example, a raise in road grade or widening.

3. Submit the drainage study to the MDOT Project Manager for review and approval by the Design Engineer - Hydraulics/Hydrology.

4. Receive any items returned by the MDOT Project Manager as incomplete or deficient.

5. Make necessary changes and resubmit the incomplete items, including a written response to all comments.

**ATTACHMENT G**
**CS 82073 - JN 80011C, JN 79724D**
**M-85 from Schaefer Highway to Oakwood Boulevard**
**City of Detroit**
**Wayne County**

## CONSTRUCTION CRITICAL PATH NETWORKS

## I. INTRODUCTION

The Vendor is required to submit a Construction Critical Path Network at various points in the design process. Refer to the following:

P/PMS TASK 3580 - DEVELOP PRELIMINARY PLANS

P/PMS TASK 3830 - COMPLETE THE CONSTRUCTION ZONE TRAFFIC CONTROL PLAN

P/PMS TASK 3840 - DEVELOP FINAL PLANS AND SPECIFICATIONS

Construction Critical Path Networks are often needed to develop the progress schedule for a project. They are required on any project designated to include an Incentive/Disincentive or Special Liquidated Damages clause. Construction Critical Path Networks are also recommended for projects with the following characteristics:

1. New construction.
2. Major reconstruction or rehabilitation on an existing roadway that will severely disrupt traffic.
3. Unique or experimental work.
4. More than one construction season.
5. Complex staging (multiple stages with traffic shifts).

As noted in MDOT's Construction and Technology Instructional Memorandum 1997-7, Progress Schedule Determinations/Critical Path Rates,

> *preparation of a Critical Path is a requirement on <u>all</u> Vendor-designed projects, regardless of the project type or complexity*

The MDOT Resident Engineer assigned to the project should be consulted when developing Construction Critical Path Networks.

MDOT requires the precedence diagramming method. The Vendor will submit this network in MPX version 4.0.

## II. NETWORK DEVELOPMENT

The network will be defined using the following steps.

1. Activity definition.
2. Activity sequencing.
3. Duration estimation.
4. Schedule development.

### 1. ACTIVITY DEFINITION

The Vendor will define the specific activities in enough detail so that the proper objectives will be met. The Vendor must identify assumptions (those factors considered true, real or certain). Supporting detail for the activities should be documented and organized as needed to simplify the review of the activities by MDOT personnel.

The Construction Critical Path Network must start with the **Letting Date** as the first activity and terminate with the **End of Project** as the finish activity.

A sufficient number of activities will be required with sufficient detail so that the controlling construction operation(s) may be identified. Notation on each activity shall include a brief work description and activity time duration.

### 2. ACTIVITY SEQUENCING

Activity sequencing involves identifying and documenting interactivity dependencies. The Vendor must sequence activities accurately to support later development of a realistic and achievable construction schedule. Two types of dependencies should be considered. Mandatory dependencies are inherent in the nature of the work being done, such as construction sequencing. Discretionary dependencies are based on a knowledge of the work to be done. Constraints are used to show how the activities relate to each. The Vendor must include documentation supporting all discretionary dependencies used in the project. All activities must lead to another activity. Only Start to Start, Finish to Finish and Finish to Start relationships will be allowed. All logic shall show how the given activity is dependent on its preceding activities.

### 3. DURATION ESTIMATION

After the Vendor has sequenced the activities, the Vendor should determine the activity duration. Activity duration estimating involves assessing the number of work periods likely to be needed to accomplish each activity. Duration (working days): No activity will have a duration greater than 20 working days unless approved by the Engineer. Activities that will be allowed to exceed 20 working days include, but are not limited to, working drawing approvals or other activities not under the control of the Contractor. If requested by the Engineer, the Vendor shall explain the reasonableness of activity time durations. The approved MDOT production rates will be used in estimating activity

duration. These are available in the Supplemental Information section of this attachment. The Vendor must document and submit all assumptions made during the duration estimation to MDOT.

### 4. SCHEDULE DEVELOPMENT

The activity sequencing, duration estimations and the calendars are combined to create the construction schedule. During the development of the schedule the Vendor will verify:

1. The required schedule to build the project.
2. The constructability of the project.
3. If the maintaining traffic scheme will work.
4. If seasonal limitations will affect the construction.
5. Any other project specific considerations.

The MDOT Calendars will be used by the Vendor in developing the network. The calendars are based on a 4, 5 or 6 day work week. The MDOT Calendars are included in the Supplemental Information section of this attachment.

At this point there should be no negative float in the network. If there is, there is an error in the network and the error must be corrected before network submittal.

All summary tasks shall be removed prior to submittal to MDOT Project Manager

## III. DELIVERABLES

After this final step the design Vendor will submit the finished CPM schedule to MDOT

### 1. Documents

A. 11" x 17" plot of the network. The critical path shall be clearly identified on the plot. A larger plot may be required for complex networks.

B. Work Day / Completion Date Determination Worksheet.

C. List of any other assumptions or controlling factors used in creating the network. For example, permit or maintaining traffic restrictions.

### 2. Electronic Format

This section sets the requirements for the eletronic submittal of the Vendor's Construction Network. All networks shall be submitted on a 3.5 inch floppy disk (or via E-mail) using one of the following formats:

A. **Standard Electronic Media Format:** This is a standard ASCII text file containing the data elements below, in the order specified. This file can be created using any text editor or word processing application ( i.e., MS-Word, WordPerfect, Notepad, Write) but must be saved as an ASCII file.

The **first line** will provide a descriptive header describing the submittal and containing:

Control Section
Job Number
Route
Vendor name
Date of Submittal

The next line will be **blank**, followed by multiple data lines.

Each **data line** will contain one record pertaining to one task of the job. Separate data fields by a comma. Fields within each task line are as follows:

(Note that the term "task" is synonymous with "activity." Leave fields that are not required blank)

(1) Task # (Job # followed by a hyphen followed by this task's unique 4 digit task number. This is the Preceding Event Activity Code)
(2) Description of Task, Milestone or Hammock, blank if this record is a constraint
(3) Calendar (see attached list)
(4) Duration of task, blank for constraints
(5) Task # of the next task (Succeeding Event) - leave blank if this record is not a constraint or hammock
(6) Type of constraint (FS, SS, FF) - leave blank if this record is not a constraint.
(7) Delay, if required
(8) Original "Baseline" Start Date
(9) Original "Baseline" Finish Date
(10) Current (forecast) Start Date (early start)
(11) Current (forecast) Finish Date (early finish)
(12) Estimated completion date (if different from early start + current duration)
(13) Late Start Date
(14) Late Finish Date
(15) Actual Start Date
(16) Actual Finish Date

Example - each line contains the following:

Task # (preceding event), Description, Calendar, Duration, Next Task # (succeeding event), Constraint Type, Delay, Baseline Start, Baseline Finish, Early Start, Early Finish, Estimated Completion Date, Late Start, Late Finish, Actual Start, Actual Finish, Total Float.

B. **Primavera Project Planner(P3) 2.0 Export Procedure:** Users who have Primavera Project Planner(P3) version 2.0 can automatically create a export file by following the export procedure below. **Users having an older version of Primavera may use the applications export feature only if they are able to include all the data elements listed in the version 2.0 format.**

**1.** Choose Tools, Project Utilities, **EXPORT**
**2.** Click **ADD**, then click **OK** to accept the next sequential ID number, or type a unique number to identify the specifications and click **OK**
**3.** Enter a description for the specification in the Title field
**4.** Specify data items to export

**Activities**
- Select **Contents of List**
- Use the Description column to specify which data items to export
- To add items, click the right mouse button in the Description column and choose from the list. Suggested Items include: **Activity ID, Activity Description, Actual Start, Actual Finish, Calendar ID, Early Start, Early Finish, Late Start, Late Finish, Original Duration.**
- Select **All Current, All Target**, or **All Target2**
- Set Description Length to 48

**OR**

**Constraints**
- Select **Successor relationships** - Choose this option to export Activity IDs and their corresponding successors only. Lags and relationship types will also be displayed in this output file.

**5.** Click **FORMAT** in Export Dialog Box
**6.** In the Output file section, enter a new name and path (ex. A:\actexp or A:\conexp). Do not include a file extension.
**7.** In the type field, click the minimize button and choose the **[.PRN] - ASCII** file format for the output file.
**8.** Select **CALENDAR** for Date Format
**9.** Set ASCII Output Field Separation to **1** and Blank column width to **0**
**10.** Click **RUN**
**11.** In the Output Options dialog box, click on **OK**

**NOTE: A COMPLETED FILE EXPORT WILL CONSIST OF 2 EXPORT FILES (ACTIVITIES & CONSTRAINTS)**

C. **Microsoft Project Export Procedure:** Users of Microsoft Project Version 4.0 and above can create a Microsoft Project Exchange (MPX) file by following the procedure below.

**1.** Choose File, Save As from the main menu
**2.** In the Save File as Type box Select **MPX 4.0**
**3.** On the drive box select a: or whichever drive is the 3.5" Floppy drive
**4.** Click on **OK**

This saves the file in MPX format.

D. **Primavera Sure Track:** Users of Sure Track Version 2.0 and above can create a Microsoft Project Exchange (MPX) file by following the procedure below.

**1.** Choose File, Save As from the main menu
**2.** In the filename box input a filename
**3.** In the Save File as Type box Select **MPX**
**4.** On the drive box select a: or whichever drive is the 3.5" Floppy drive
**5.** Click on **OK**

This saves the file in MPX format

E. **Scitor Project Scheduler 7 Export Procedure:** Users of Scitor Project Scheduler Version 7 and above can create a Microsoft Project Exchange (MPX) file by following the procedure below.

**1.** Choose File, Save As from the main menu
**2.** In filename box select a filename
**3.** In the Save File as Type box Select MPX
**4.** On the drive box select a: or whichever drive is the 3.5" Floppy drive
**5.** Click on **OK**

This saves the file in MPX format

F. **Export Files with Other Scheduling Applications:** Most scheduling packages have export functions similar to those described above. If the Vendor chooses to use packages with export capabilities, they shall include all items listed in the Standard Media Format in a text or ASCII type file.

## IV. SUPPLEMENTAL INFORMATION

## A. MDOT CRITICAL PATH-CONSTRUCTION TIME ESTIMATES

| | |
|---|---|
| **Drainage** | |
| Cross Culverts | |
| Rural Highways | 44 yd./day |
| Expressways | 55 yd./day |
| Large Headwalls | 5 days/unit |
| Slab or Box Culverts | 5 days/pour |
| Plowed in Edge Drain (production type project) | 4921 yd./day |
| Open Graded Underdrain (production type project) | 1312 yd./day |
| Sewers | |
| 0m-5m(up to 60 in. (1500mm)) | 44 yd./day |
| 0m-5m(over 60 in. (1500mm)) | 27 yd./day |
| 5m-over(up to 60 in. (1500mm)) | 27 yd./day |
| 5m-over(over 60 in. (1500mm)) | 22 yd./day |
| Jacked-in-place | 14 yd./day |
| including excavation pit & set up | min. 5 days |
| Tunnels | |
| hand mining | 9 yd./day |
| machine mining | 22 yd./day |
| including excavation pit & set up | min. 5 days |
| Manholes | 3 units/day |
| Catch Basin | 4 units/day |
| **Utilities** | |
| Water Main(up to 16 in. (400mm)) | 109 yd./day |
| Flushing, Testing & Chlorination | 4 days |
| Water Main(20 in. (500mm) – 40 in. (1050mm)) | 27 yd./day |
| Flushing, Testing & Chlorination | 5 days |
| Order & Deliver 24 in. (600 mm) HP Water Main | 50 days/order |
| Gas Lines | 109 yd./day |

| **Earthwork and Grading** | **Metro Exp** | **Rural** |
|---|---|---|
| Embankment(CIP) | 1962 $yd.^3$/day | 6932 $yd.^3$/day |
| Excavation and/or Embankment(Freeway) | 1962 $yd.^3$/day | 12033 |

| | | yd.$^3$/day |
|---|---|---|
| Excavation and/or Embankment(Reconstruction) | 981 yd.$^3$/day | 4970 yd.$^3$/day |
| Embankment(Lightweight Fill) | 392 yd.$^3$/day | 785 yd.$^3$/day |
| Muck(Excavated Waste & Backfill) | 1962 yd.$^3$/day | |
| Excavation(Widening) | 656 yd./day | |
| Grading(G & DS) | 820 yd./day | |
| Subbase and Selected Subbase(up to 8 yd. (7.4m)) | 656 yd./day | |
| Subbase and Selected Subbase(8 yd. (7.4 m) & over) | 492 yd./day | |
| Subgrade Undercut & Backfill | 1962 yd.$^3$/day | |
| Subbase & Open-Graded Drainage Course | 492 yd./day | |

**Surfacing**

| | |
|---|---|
| Concrete Pavement (8 ft. (7.3m)) | 492 yd./day |
| Including Forming & Curing | min. 7 days |
| Bituminous Pavement (8 ft. (7.3m)) | 1312 yd./day/course |
| Concrete Ramps(5.6 yd. (4.9m)) | 328 yd./day |
| Including Forming & Curing | min. 7 days |
| Curb(1 side) | 820 yd./day |
| Concrete Shoulder-Median | 1435 yd.$^2$/day |
| Bituminous Shoulders(1 side per course) | 820 yd./day |
| Sidewalk | 215 yd.$^2$/day |
| Sidewalk(Patching) | 78 yd.$^2$/day |

**Structures**

| | |
|---|---|
| Sheeting(Shallow) | 33 yd./day |
| General Excavation at Bridge Site | 981 yd.$^3$/day |
| Excavation for Substructure(Footings) | 1 unit/day |
| Piles(12m) | 15 piles/day |
| Substructure(Piers & Abutments) | 5 days/unit |

Order and Delivery of Beams

| | |
|---|---|
| Plate Girders | 100-120 days/order |
| Rolled Beams | 90-120 days/order |
| Concrete Beams | 50 days/order |

| | |
|---|---|
| Erection of Structural Steel | 3 days/span |
| Bridge Decks | |
| Form & Place Reinforcement(66 yd. (60m) Structure) | 15 days |
| Pour Deck Slab(1 1/5 days/pour) | 2 days/span |
| Cure | 14 days |
| 2 Course Bridge Decks | |
| Add 9 days for Second Course Latex | |
| Add 12 days for Second Course Low Slump | |
| Sidewalks and Railings | |
| Sidewalks and Parapets | 5 days/span |
| Slip Formed Barriers | 2 days/span |
| Clean Up | 10 days |
| Pedestrian Fencing | |
| Shop Plan Approval & Fabrication | 1-2 months |
| Erection | 1 week/bridge |
| Rip Rap Placement | |
| Bucket Dumped | 504 $yd.^3$/day |
| Bucket Dumped and Hand Finished | 171 - 684 $yd.^3$/day |
| **Retaining Walls** | 1 Panel/day<br>min. 10 days |
| **Railroad Structures** | |
| Grade Temporary Runaround | 981 $yd.^3$/day |
| Ballast, Ties & Track | 55 yd./day |
| Place Deck Plates | 5 days/span |
| Waterproof, Shotcrete & Mastic | 5 days/span |
| **Railroad Crossing Reconstruction** | 10-15 work days |
| (depends on whether concrete base is involved) | |
| **Temporary Railroad Structures** | |
| Order & Deliver Steel | 55 days/order |
| Erect Steel | 1 day/span |
| Ties and Track | 3 days/span |
| **Pumphouse** | |
| Structure | 30 days/structure |
| Order & Deliver Electrical & Mechanical Equipment | 90 days |

| | |
|---|---|
| Install Electrical & Mechanical Equipment | 30 days |

**Miscellaneous**

| | |
|---|---|
| Removing Old Pavement | 66 yd./day |
| Removing Old Pavement for Recycling(8 yd. (7.3m)) | 492 yd./day |
| Crushing Old Concrete for 6A or OGDC | 1488 tons/day |
| Removing Trees(Urban) | 15 units/day |
| Removing Trees(Rural) | 30 units/day |
| Removing Concrete Pavement | 538 $yd.^2$/day |
| Removing Sidewalk | 299 $yd.^2$/day |
| Removing Curb & Gutter | 492 yd./day |
| Removing Bituminous Surface | 1914 $yd.^2$/day |
| Conditioning Aggregate | 984 yd./day |
| Bituminous Base Stablizing | 2990 $yd.^2$/day |
| Ditching | 656 yd./day |
| Trenching for Shoulders | 820 yd./day |
| Station Grading | 667 yd./day |
| Clearing | 9568 $yd.^2$/day |
| Restoration(Topsoil, Seeding, Fertilizer & Mulch) | 1973 $yd.^2$/day |
| Sodding | 2512 $yd.^2$/day |
| Seeding | 47840 $yd.^2$/day |
| Guard Rail | 252 yd./day |
| Fence(Woven Wire) | 394 yd./day |
| Fence(Chain Link) | 164 yd./day |
| Clean Up | 656 yd./day |

| | |
|---|---|
| Concrete Median Barrier | 328 yd./day |
| Cure | min. 7 days |
| Reroute Traffic(Add 4 days if 1st item) | 1 day/move |
| Concrete Glare Screen | 492 yd./day |
| Light Foundations | 6 units/day |
| Order & Delivery | 6-8 week/order |
| Remove Railing & Replace with Barrier(1 or 2 decks at a time) | 4 days/side |
| Longitudinal Joint Repair | 1750 yd./day |
| Crack Sealing | 5249 yd./day |
| Joint and Crack Sealing | 547 yd./day |
| Repairing Pavement Joints - Detail 7 or 8 | 219 yd./day |

| | |
|---|---|
| Seal Coat | 6999 lane yd./day |
| Diamond Grinding/Profile Texturing Concrete | 3947 $yd.^2$/day |
| Rest Area Building | |
| Order Material | 3 months |
| Construct Building | 9 months |
| Tower Lights | |
| Order and Deliver Towers | 100 days |
| Weigh-In-Motion | |
| Order and Deliver Materials | 1 month-6weeks |
| O & D with Installation | 3 months |
| Raised Pavment Markers | 300 each/day |
| Attenuators | 2 each/day |
| Shoulder Corrugations, Ground or Cut | 5 - 6 mi./side/day |
| Aggregate Base | 3468 $yd.^2$/day |
| Aggregate Shoulders | 458 $yd.^3$/day |
| Freeway Signing - 3# Post Type | 50 signs/day |

**Concrete Joint Repair** (High Production-Projects with > 1000 patches)

| | |
|---|---|
| Average(2 yd. (1.8m)) | 50 patches/day |
| Large(>2 yd. (1.8m)) | 598 $yd.^2$/day |

| | |
|---|---|
| **Bridge Painting** | 108 $yd.^2$/day |
| **Pin and Hanger Replacement** | 3 beams/day |
| Order Pin & Hanger | 60 days |

**Bridge Repair**

| | |
|---|---|
| Scarifying(Including Clean up) | 11960 $yd.^2$/day |
| Joint Removal(Including Clean up) | 4 yd./day |
| Forming & Placement | 3.8 yd./day |
| Hydro-Demolishing | 328 yd./day |
| Barrier Removal | 16 yd./day |
| Placement | 49 yd./day |
| Hand Chipping (Other than Deck) | 0.31 $yd.^{3/}$person/day |
| Shoulder Corrugations, Ground or Cut | 5 - 6 mi./side/day |
| Casting Latex Overlay | 273 yd./day |
| Curing Overlay | |
| Regular | 4 days |

| | |
|---|---|
| High Early | 1 day |
| Thrie Beam Retrofit | 33 yd./day |
| Beam End Repairs | |
| Welded Repairs | .75 days/repair |
| Bolted Repairs | .50 days/repair |
| Bolted Stiffeners (Pair) | .25 days/repair |
| Grind Beam Ends | .25 days/repair |
| Welded Stiffeners (Pair) | .25 days/repair |
| H-Pedestal Repairs: | |
| Welded Repair | .50 days/each |
| Replacement | 1 day/each |
| Deck Removal | 281 $yd.^2$/day |

**Surfacing-Bituminous**

| | |
|---|---|
| Metro-Primary(<(19800 tons (18000mtons)) | |
| Paving | 594 tons/day |
| Joints | 164 yd./day |
| Cold Milling | 4066 $yd.^2$/day |
| Aggregate Shoulders | 990 tons/day |
| Metro Primary(>(19800 tons (18000mtons)) | |
| Paving | 594 tons/day |
| Joints | 219 yd./day |
| Cold Milling | 8970 $yd.^2$/day |
| Metro Interstate(>(19800 tons (18000mtons)) | |
| Paving | 1210 tons/day |
| Joints | 394 yd./day |
| Aggregate Shoulders | 990 tons/day |
| Urban Primary(<(19800 tons (18000mtons)) | |
| Paving | 704 tons/day |
| Joints | 109 yd./day |
| Cold Milling | 2033 $yd.^2$/day |
| Rubblizing | 2033 $yd.^2$/day |
| Aggregate Shoulders | 495 tons/day |
| Urban Primary(>(19800 tons (18000mtons)) | |
| Paving | 1100 tons/day |
| Joints | 131 yd./day |
| Cold Milling | 2033 $yd.^2$/day |
| Aggregate Shoulders | 550 tons/day |
| Urban Interstate(>(19800 tons (18000mtons)) | |

| | |
|---|---|
| Paving | 1320 tons/day |
| Joints | 241 yd./day |
| Cold Milling | 2033 $yd.^2$/day |
| Rubblizing | 6937 $yd.^2$/day |
| Aggregate Shoulders | 704 tons/day |
| Rural Primary(<(19800 tons (18000mtons)) | |
| Paving | 704 tons/day |
| Joints | 131 yd./day |
| Cold Milling | 649 tons/day |
| Crush & Shape | 11960 $yd.^2$/day |
| Aggregate Shoulders | 704 tons/day |
| Rural Primary(>(19800 tons (18000mtons)) | |
| Paving | 1210 tons/day |
| Joints | 164 yd./day |
| Cold Milling | 880 tons/day |
| Crush & Shape | 11960 $yd.^2$/day |
| Rural Interstate(>(19800 tons (18000mtons)) | |
| Paving | 1411 tons/day |
| Joints | 240 yd./day |

**B. WORKSHEET**

**WORK DAY/COMPLETION DATE DETERMINATION**

CS: _____ JN:

DESCRIPTION OF WORK: _____

| MAJOR WORK ITEM | PRODUCTION QUANTITY | RATE | ESTIMATED TIME |
|---|---|---|---|
| | | | |
| | | | |
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TOTAL ESTIMATED TIME:

COMPLETION DATE: _____ (Calendar Days or Work Days)

COMMENTS:

_____

_____

_____

_____

_____

## C. MDOT CALENDARS

The following are the MDOT 4, 5 and 6 day calendars:

| CALENDAR | DESCRIPTION | START | FINISH |
|---|---|---|---|
| 1 | Std - Apr 16 - Nov 15 - 4 day | APR 16 | N0V 15 |
| 2 | LP - Bit Stab - 4 day | MAY 15 | OCT 15 |
| 3 | UP - Bit Stab - 4 day | JUN 01 | OCT 01 |
| 4 | LP S of M-46 - Bit Pave - 4 day | MAY 05 | NOV 15 |
| 5 | LP N of M-46 - Bit Pave - 4 day | MAY 15 | NOV 01 |
| 6 | UP - Bit Pave - 4 day | JUN 01 | OCT 15 |
| 7 | LP - Bit Seal Coat - 4 day | JUN 01 | SEP 15 |
| 8 | UP - Bit Seal Coat - 4 day | JUN 15 | SEP 01 |
| 9 | Tree Planting - Deciduous - 4 day | MAR 01<br>OCT 01 | MAY 15<br>NOV 15 |
| 10 | Tree Planting - Evergreen - 4 day | MAR 01 | JUN 01 |
| 11 | South LP - Restoration - 4 day | MAY 01 | OCT 10 |
| 12 | North LP - Restoration - 4 day | MAY 01 | OCT 01 |
| 13 | UP - Restoration - 4 day | MAY 01 | SEP 20 |
| 14 | Full Year - Winter Work - 4 day | JAN 01 | DEC 31 |
| 21 | Std - Apr 16 - Nov 15 - 5 day | APR 16 | NOV 15 |
| 22 | LP - Bit Stab - 5 day | MAY 15 | OCT 15 |
| 23 | UP - Bit Stab - 5 day | JUN 01 | OCT 01 |
| 24 | LP S of M-46 - Bit Pave - 5 day | MAY 05 | NOV 15 |
| 25 | LP N of M-46 - Bit Pave - 5 day | MAY 15 | NOV 01 |
| 26 | UP - Bit Pave - 5 day | JUN 01 | OCT 15 |
| 27 | LP - Bit Seal Coat - 5 day | JUN 01 | SEP 15 |
| 28 | UP - Bit Seal Coat - 5 day | JUN 15 | SEP 01 |
| 29 | Tree Planting - Deciduous - 5 day | MAR 01<br>OCT 01 | MAY 01<br>NOV 15 |
| 30 | Tree Planting - Evergreen - 5 day | MAR 01 | JUN 01 |
| 31 | South LP - Restoration - 5 day | MAY 01 | OCT 10 |

| | | | |
|---|---|---|---|
| 32 | North LP - Restoration - 5 day | MAY 01 | OCT 01 |
| 33 | UP - Restoration - 5 day | MAY 01 | SEP 20 |
| 34 | Full Year – Winter Work - 5 day | JAN 01 | DEC 31 |
| 35 | Full Year - Expedited - 6 day | JAN 01 | DEC 31 |

**ATTACHMENT H**
**CS 82073 - JN 80011C, JN 79724D**
**M-85 from Schaefer Highway to Oakwood Boulevard**
**City of Detroit**
**Wayne County**

## MONTHLY PROGRESS REPORTS

The first two pages of this attachment are the necessary layout of the Monthly progress reports and the last three pages are a completed example.

**Control Section** 00000
**Job Number** 00000C
**Structure Number** S00
**Date** 00/00/00

## MONTHLY PROGRESS REPORT

A. Work accomplished during the previous month.

B. Anticipated work items for the upcoming month.

C. Real or anticipated problems on the project.

D. Update of previously approved detailed project schedule (attached), including explanations for any delays or changes.

E. Items needed from MDOT.

F. Copy of Verbal Contact Records for the period (attached).

**Structure Number – Control Section – Job Number**
**Route, Location Description**
Design Schedule as of 00/00/00

**LIST TASKS, SUBMITTALS, APPROVALS AND MEETINGS AS OUTLINED IN SCOPE OF DESIGN SERVICES AS NEEDED. THIS LIST IS JUST AN EXAMPLE.**

| Original Authorized Start Date | Original Authorized Finish Date | (Anticipated) or **Actual** Start Dates | (Anticipated) or **Actual** Finish Dates | Task | Task Description |
|---|---|---|---|---|---|
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | ?? | Initial project meeting. |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3330 | Conduct Design Survey |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3360 | Prepare Base Plans |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | | Submit Base Plans |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3580 | Develop Preliminary Plans |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3390 | Develop Construction Zone Traffic Control Concepts |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3540 | Develop Construction Zone Traffic Control Plan |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3550 | Develop Preliminary Traffic Operations Plan |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3351 | Review & Submit of Preliminary Right-Of-Way Plans |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | | Submittal of The Plan Review Package |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | | Completion of The Plan Review Meeting |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3840 | Develop Final Plans and Specs |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | | Submittal of final plans/proposal package to MDOT for final review |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3870 | Omissions/Errors Check (OEC) Meeting |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | | Vendor's Plan Completion: Final Construction Plan/Proposal Package with recommendations Incorporated to MDOT (two weeks After OEC Meeting) |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | | Final Deliverables to MDOT |

**Control Section** 12345
**Job Number** 11111C
**Structure Number** S02
**Date** 07/31/95

## MONTHLY PROGRESS REPORT

A. Work accomplished during the previous month.

1. During the last month we completed the Final Right of Way plans and submitted them to Thomas Nelson, Jr. on 05/01/99.

B. Anticipated work items for the upcoming month.

1. Submit the Preliminary Plans and related material on 03/11/99.

2. Attend the meeting regarding the Ameritech lines on the bridge, scheduled for 03/12/99.

C. Real or anticipated problems on the project.

1. We foresee no problems at this time.

D. Update of previously approved detailed project schedule (attached), including explanations for any delays or changes.

1. The design is falling behind schedule because we had problems resolving the geometries of the ramps in relation to the bridge. The Preliminary Plan submittal will be the only task affected by this delay because we will make up the lost time prior to submitting the Final Plans and Specifications.

E. Items needed from MDOT.

1. Prior to final Plan submittal we will need the latest Special provision and Supplemental Specification checklist.

F. Copy of Verbal Contact Records for the period (attached).

1. Discussed bridge and ramp geometries with Tom Myers of M$DOT Traffic and Safety Division on 07-24-95.

**SN: S02 - CS: 12345 - JN: 11111C**
**M-111, from There Village Limits to north of That Road**
Design Schedule as of 07/31/95

| Original Authorized Start Date | Original Authorized Finish Date | (Anticipated) or **Actual** Start Dates | (Anticipated) or **Actual** Finish Dates | Task | Task Description |
|---|---|---|---|---|---|
| 01/12/95 | 01/12/95 | **01/12/95** | **01/12/95** | ?? | Initial project meeting. |
| 01/29/95 | 01/29/95 | **01/30/95** | **01/30/95** | 3330 | Conduct Design Survey. |
| 02/17/95 | 04/10/95 | **02/17/95** | **04/20/95** | 3360 | Prepare Base Plans. |
| 02/29/95 | 02/29/95 | **02/29/95** | **02/29/95** | 3390 | Develop the Construction Zone Traffic Control Concepts |
| 03/12/95 | 03/13/95 | **03/12/95** | (03/30/95) | 3540 | Develop Construction Zone Traffic Control Plan |
| 03/20/95 | 03/19/95 | **03/25/95** | (03/30/95) | 3551 | Develop/Review Preliminary Traffic Signal Plan |
| 07/01/95 | 07/01/95 | (07/01/95) | (07/01/95) | 3590 | The Plan Review Meeting |
| 07/11/95 | 08/11/95 | (07/11/95) | (08/11/95) | 3821 | Complete/Review Traffic Signal Plan |
| 09/15/95 | 09/15/95 | (09/15/95) | (09/15/95) | 3830 | Complete Construction Zone Traffic Control Plan. |
| 09/16/95 | 09/16/95 | (09/16/95) | (09/16/95) | 3840 | Develop Final Plans and Specifications |
| 09/25/95 | 09/23/95 | (09/25/95) | (09/25/95) | 3870 | Omissions/Errors Check (OEC) Meeting |

# VERBAL CONTACT RECORD

**Control Section** 12345
**Job Number** 11111C
**Structure Number** S02
**Date** 07/31/95

Joe Engineer talked to Tom Myers and decided to use a 0.05'/ft super on ramp A leading into the bridge.

**ATTACHMENT I**
**CS 82073 - JN 80011C, JN 79724D**
**M-85 from Schaefer Highway to Oakwood Boulevard**
**City of Detroit**
**Wayne County**

## MDOT DESIGN VENDOR MANUAL

The MDOT Design Vendor Manual is now listed on the MDOT Bulletin Board System and can be found under the D_CONSLT Library. An index of the latest version of the task descriptions along with any revisions will be included as part of this authorization.

VENDORS are still encouraged to review and provide comment on the draft pages from the MDOT Design Vendor Manual. Please send suggestions to:

Katherine Hulley
Administrative Products Supervising Engineer
Design Division
Michigan Department of Transportation
425 West Ottawa
P.O. Box 30050
Lansing, MI 48909

## P/PMS TASK - INDEX - VERSION 2 rev 2

ISSUED 9/29/2000

| P/PMS TASK | CURRENT DATE | LATEST REVISION DATE |
|---|---|---|
| 3120 - CONDUCT STRUCTURE DECK CONDITION SURVEY | 07/29/99 | |
| 3330 - CONDUCT DESIGN SURVEY | 07/29/99 | |
| 3340 - CONDUCT STRUCTURE SURVEY | 07/29/99 | |
| 3350 - CONDUCT HYDRAULICS SURVEY | 07/29/99 | |
| 3360 - PREPARE BASE PLANS | 06/22/99 | |
| 3361 - REVIEW AND SUBMIT PRELIMINARY RIGHT OF WAY (PROW) PLANS | 07/16/99 | |
| 3370 - PREPARE STRUCTURE STUDY | 06/16/99 | |
| 3380 - REVIEW BASE PLANS | 06/29/99 | |
| 3390 - DEVELOP THE CONSTRUCTION ZONE TRAFFIC CONTROL CONCEPTS | 07/16/99 | |
| 3510 - PERFORM ROADWAY GEOTECHNICAL INVESTIGATION | 07/29/99 | |
| 3520 - CONDUCT HYDROLOGIC, HYDRAULIC AND SCOUR ANALYSES | 08/29/00 | revised per P. Schriner |
| 3530 - CONDUCT FOUNDATION STRUCTURE INVESTIGATION | 07/16/99 | |
| 3540 - DEVELOP CONSTRUCTION ZONE TRAFFIC CONTROL PLAN | 07/16/99 | |
| 3551 - DEVELOP/REVIEW PRELIMINARY TRAFFIC SIGNALS PLAN | 07/16/99 | added to index 1/5/2000 |
| 3552 - DEVELOP PRELIMINARY PERMANENT PAVEMENT MARKING PLAN | 07/16/99 | |
| 3553 - DEVELOP PRELIMINARY NON - FREEWAY SIGNING PLAN | 07/16/99 | |
| 3554 - DEVELOP PRELIMINARY FREEWAY SIGNING PLAN | 07/16/99 | |
| 3570 - PREPARE PRELIMINARY STRUCTURE PLANS | 07/16/99 | |
| 3580 - DEVELOP PRELIMINARY PLANS | 06/30/99 | |
| 3581 - FINAL RIGHT-OF-WAY PLANS | 07/16/99 | |
| 3590 - REVIEW PRELIMINARY PLANS | 06/29/99 | |
| 3670 - DEVELOP MUNICIPAL UTILITY PLANS | 06/30/99 | |
| 3675 - DEVELOP ELECTRICAL PLANS | 07/01/99 | |

| P/PMS TASK | CURRENT DATE | LATEST REVISION DATE |
|---|---|---|
| 3710 - DEVELOP REQUIRED MITIGATION (FOR INFORMATION ONLY, THIS IS NOT A VENDOR TASK) | 07/16/99 | |
| 3720 - SUBMIT ENVIRONMENTAL PERMIT APPLICATIONS (FOR INFORMATION ONLY, THIS IS NOT A VENDOR TASK) | 07/16/99 | |
| 3821 - COMPLETE/REVIEW TRAFFIC SIGNAL PLANS | 07/16/99 | |
| 3822 - COMPLETE PERMANENT PAVEMENT MARKING PLAN | 07/16/99 | |
| 3823 - COMPLETE NON-FREEWAY SIGNING PLAN | 07/16/99 | |
| 3824 - COMPLETE FREEWAY SIGNING PLAN | 07/16/99 | |
| 3830 - COMPLETE CONSTRUCTION ZONE TRAFFIC CONTROL PLAN | 06/22/99 | |
| 3840 - DEVELOP FINAL PLANS AND SPECIFICATIONS | 07/02/99 | |
| 3850 - DEVELOP STRUCTURE FINAL PLANS AND SPECIFICATIONS | 07/29/99 | |
| 3870 - HOLD OMISSIONS/ERRORS CHECK (OEC) MEETING | 07/13/99 | |
| 4120 - OBTAIN PRELIMINARY TITLE COMMITMENTS | 06/29/99 | |
| 4130 - PREPARE MARKED FINAL R.O.W. PLANS | 06/29/99 | |
| 4140 - PREPARE PROPERTY LEGAL INSTRUMENTS | 06/29/99 | |
| 5010 - CONSTRUCTION PHASE ENGINEERING ASSISTANCE | 07/29/99 | |

**PROJECT LOCATION: M-85 from Miller Street to Springwells Street in the City of Detroit, Wayne County**
**CONTROL SECTION, JOB NUMBER: CS 82073 – JN 87112C**
**DESCRIPTION OF WORK: Roadway Rehabilitation**

## I Primary Prequalification Classification:

Roadway Rehabilitation & Rural Freeways

## II Secondary Prequalification Classification:

~~Short and Medium Span Bridges~~
~~Railroad Bridges~~
~~Specialty Walls and Slopes~~
Municipal Utilities
Pump Station Design
Landscape Architecture
Right-Of-Way Surveys
Road Design Surveys
Structure Surveys
Photogrammetric Control Surveys
Photogrammetry
Asbestos Investigations
Geotechnical Engineering Services
Maintaining Traffic Plans & Provisions
Pavement Marking Plans
Permanent Non-Freeway Traffic Signing Plans
Traffic Signal Design
Traffic Operations Studies
Utility Coordination
Subsurface Utility Engineering

The anticipated start date of the service is July 24, 2006.
The anticipated completion date for the service is January 3, 2011.

DBE Requirement: 10%

Send Proposals to:
Mark A. Sweeney – Project Manager
MDOT – Metro Region Office
18101 West Nine Mile Road
Southfield, Michigan 48075

**SCOPE OF DESIGN SERVICES**
**CS 82073 - JN 87112C**
**M-85 from Miller Street to Springwells Street**
**City of Detroit, Wayne County**

## I. SCOPE OF VENDOR DUTIES

Complete the design of this project including, but not limited to the following:

A. This project shall follow the findings contained within the Final Scoping Package for this project (the Final Scoping Package was compiled as part of the EPE portion of this project).

B. Participate with and incorporate findings from separate evaluation efforts (performed by others) concerning the Capacity, Public Involvement, Historical and Context Sensitive Design Issues and Parking.

C. Conduct Value Planning workshop.

D. Perform design surveys. **Please know that a design survey for this project has already been performed.** This task has been included should additional survey information be required.

E. Provide additional survey information (determine bridge footing elevations and locate underground storage tanks, coal chutes and basements within the project limits).

F. Provide additional S.U.E. information (Subsurface Utility Engineering). (See Attachment B). **Please know that a S.U.E. Contract was included as part of the EPE portion of this project.** This task has been included should additional S.U.E. information be required.

G. Prepare a drainage study and related design.

H. Prepare required plans, typical cross-sections, details, and specifications required for design and construction.

I. Compute and verify all plan quantities.

J. Prepare staging plans and special provisions for maintaining traffic during construction.

K. Prepare pavement marking plans and special provisions.

L. Prepare traffic signal plans and special provisions.

M. Prepare permanent signing plans and special provisions for non-freeway sign upgrading.

N. Prepare Municipal Utility plans and special provisions (to include public water, lighting (PLD) and sanitary services).

O. Prepare pump station plans and special provisions.

P. Prepare landscaping / enhancement plans and special provisions.

Q. Provide base sheets to the MDOT MITS Center. Receive MDOT's mark-up drawings, pay items and special provisions, and prepare necessary MITS plans as appropriate. The Vendor will be responsible for all CADD and SAPW work.

R. Prepare Right-Of-Way and Marked Final Right of Way plans, as required, to locate, verify and purchase real estate and/or obtain construction access permits for this project.

S. Perform a Crash Analysis and Safety Review for this project. (See Attachment E).

T. Prepare the accident analysis report for this project. A separate report may be required for the roadway and for each of the design elements included within the design exception requests.

U. Prepare a capacity analysis, as well as provide user costs.

V. As part of this project, the design of additional bridges may be added at a later date, which will be designed by the Vendor. These additional structures may be associated with different job numbers (still to be determined), but will be included within this selection. In the event that the bridges are added, the Vendor will be notified accordingly with Scopes of Work provided at that time.

W. Perform Utility Coordination for the project (See Attachment D).

X. Coordinate this project with the affected communities and business groups.

Y. Coordinate with the M-85 bascule bridge over the Rouge River project currently being studied for replacement and realignment. Construction of the bridge and associated approach work from Bayside Avenue to Miller Road may run concurrently with this reconstruction project.

Z. Coordinate with the additional reconstruction projects along M-85 from Miller Road to Springwells Street and Springwells Street to Clark Street. Construction of these sections of M-85 may run concurrently or consecutively.

AA. The Vendor may be asked to break this project into, multiple independent construction packages. Each package will be let under separate job numbers (to be determined at a later date), possibly with separate lettings. The Vendor will be responsible for preparing all of the necessary plans, special provisions and details that each of the construction packages will require.

BB. Provide solutions to any unique problems that may arise during the design of the project.

CC. The Vendor may be required to provide Design Services during the construction phase of this project. If Construction Assistance is required, then a separate authorization for those services will be issued.

## II. PROJECT LOCATION

The project is located along M-85, between Miller Street to Springwells Street, in the City of Detroit, Wayne County. The project length is approximately 0.98 miles.

## III. PROJECT DESCRIPTION

This project consists of all work related to designing this reconstruction project, including but not limited to the following:

A. Perform grading and earthwork.
B. Reconstruct the road as per the MDOT Pavement Design.
C. Perform shoulder upgrades, as is required.
D. Install / replace curb and gutter.
E. Upgrade geometrics to current standards
F. Perform crown and superelevation modifications.
G. Upgrade existing underclearances.
~~H. Potentially perform design for additional bridges, to be determined at Scope Verification~~.
I. Adjust and upgrade the existing drainage system.
J. Separate the proposed storm sewer system from the existing combined sewer system.
K. Adjust and replace existing signs.
L. Adjust and upgrade signals.
M. Perform guardrail upgrades or design, as is required.
N. Clean existing drainage structures and drainage structure leads, as is required
O. Install, if not already present, sidewalk ramp terminals at all sidewalk street intersection locations.

Work shall conform to current MDOT, FHWA, and AASHTO practices, guidelines, policies, and standards (i.e., Road Design Manual, Standard Plans, Roadside Design Guide, A Policy on Geometric Design of Highways and Streets, Michigan Manual of Uniform Traffic Control Devices, etc.).

## IV. PROJECT CONSTRUCTION COST

A. The estimated cost of construction is:

| | | |
|---|---|---|
| Roadway Rehabilitation (JN 87112C) | Programmed Cost: | $10,698,100 |
| | **CONSTRUCTION TOTAL** | **$10,698,100** |

The above construction total is the amount of funding programmed for this project. The Vendor is expected to design the project within the programmed amount.

**If at any time the estimated cost of construction varies by more than 5% of the current programmed amount, then the Vendor will be required to submit a letter justifying the changes in the construction cost estimate.**

## V. PROJECT SCHEDULE

The scheduled Vendor's plan completion date for this project is February 1, 2010. The Vendor shall use the following events to prepare the proposed implementation schedule as required in the Guidelines for the Preparation of Responses on Assigned Design Services Contracts. These dates shall be used in preparing the Vendor's Monthly Progress Reports.

| Target Date | Task # | Description |
|---|---|---|
| | 3330 | Conduct Design Survey |
| | ~~3340~~ | ~~Conduct Structure Survey~~ |
| | | Submit Survey Final Deliverables |
| | 3360 | Prepare Base Plans |
| | | Submit Base Plans |
| | 3361 | Submittal of Preliminary Right-Of-Way Plans |
| | ~~3370~~ | ~~Prepare Structure Study~~ |
| | 3380 | Review Base Plans (by MDOT) |
| | 3390 | Develop the Construction Zone Traffic Control Concepts |
| | 3510 | Perform Roadway Geotechnical Investigation (to determine bridge footing elevations and locate underground storage tanks, coal chutes and basements within the project limits) |
| | 3522 | Conduct Drainage Study, Storm Sewer Design, and Structural Best Management Practices (BMP) |
| | ~~3530~~ | ~~Conduct Structure Foundation Investigation~~ |
| | ~~3535~~ | ~~Conduct Structure Review for Architectural and Aesthetic Improvement~~ |
| | | Submit Plans for Utility Review (approximately 50% complete) |
| | | Submit Environmental Permit Information (6 months prior to the Plan Completion Date) |
| | 3540 | Develop Construction Zone Traffic Control Plan |

| | | |
|---|---|---|
| | 3551 | Perform/Review Traffic Signal Operations Plan |
| | 3552 | Develop Preliminary Permanent Pavement Marking Plan |
| | 3553 | Develop Preliminary Non-Freeway Signing Plan |
| | ~~3570~~ | ~~Prepare Preliminary Structure Plans~~ |
| | 3580 | Develop Preliminary Plans<br>Submit Preliminary Plans |
| | 3581 | Final Right-Of-Way Plans |
| | 4120 | Obtain Preliminary Title Commitments |
| | 4130 | Prepare Marked Final R.O.W. Plans |
| | 4140 | Prepare Property Legal Instruments |
| | 3590 | Review Preliminary Plans (The Plan Review) (by MDOT) |
| | 3650 | Railroad Coordination |
| | 3670 | Develop Municipal Utility Plans (impacted by road work) |
| | 3672 | Development Special Drainage Structures Plans |
| | 3675 | Develop Electrical Plans (impacted by road work) |
| | 3680 | Obtain Required Municipal Utility Permits (impacted by road work) |
| | 3821 | Complete/Review Traffic Signal Plans |
| | 3822 | Complete Permanent Pavement Marking Plan |
| | 3823 | Complete Non-Freeway Signing Plan |
| | 3830 | Complete the Construction Zone Traffic Control Plan |
| | 3840 | Develop Final Plans and Specifications |
| | ~~3850~~ | ~~Develop Structure Final Plans and Specifications~~ |
| 11/30/09 | | Submit Final Plan/Proposal Package to MDOT for final review |
| | 3870 | Hold Omissions/Errors Check (OEC) Meeting |
| 01/04/10 | | Omissions/Errors Check (OEC) Meeting (approximate date) |
| 02/01/10 | | Vendor's Plan Completion: Final Construction Plan/Proposal package with recommendations incorporated to MDOT (two weeks after OEC Meeting) |
| 01/3/11 | | Final Deliverables to MDOT |

## VI. PAYMENT SCHEDULE

Compensation for this Scope of Design Services shall be on an actual cost plus fixed fee basis.

## VII. MONTHLY PROGRESS REPORT

On the first of each month, the Vendor Project Manager shall submit a monthly project progress report to **Mark Sweeney**, Project Manager, **Ishrat Jahan**, the Road Vendor Coordinator. The monthly progress report shall follow the guidelines in Attachment H.

## VIII. FORMAT

The Vendor shall deliver all computer files associated with the project in their native format (spreadsheets, CADD files, GEOPAK files, etc. ) on DVD, CD and/or uploaded to ProjectWise, as directed by the MDOT Project Manager. All CADD/GEOPAK files shall be created and

identified with standard MDOT file names as shown in Appendix A of the Road Design Manual. It is the Vendor's responsibility to obtain up to date Microstation (V8) and GEOPAK seed/configuration files necessary to comply with MDOT's CADD standards which are posted to the bulletin system. When the use of GEOPAK road design software is necessary to develop plans all pay items shall be placed into the CADD file using GEOPAK's Design and Computation Manager so that Quantity Manager can be used to transfer pay item information to SAPW/Trns*port. Any CADD/GEOPAK files that do not conform to MDOT standards will be returned to the Vendor for correction at the Vendor's expense.

Proposal documents shall be submitted both in their native format with standard naming conventions and as individual Adobe PDF files. To provide text search capabilities, the PDF files shall be created by converting the native electronic files to PDF. Scanning to PDF is discourages except in instances when it is necessary to capture a legally signed document or when a hard copy version of the document is all that exists.

Plan files shall be submitted both in their native .dgn format with standard naming conventions and plotted into a combined Adobe PDF file. Plan sheets shall be plotted to Adobe PDF with full text search and level on/off capabilities in both scalable full size (24" x 36") and scalable half size (11" x 17") formats including plan sheets and profile sheets will be required. The project will require a ratio (scale) of 1:40; scale and layout of sheets to be discussed with the Road Vendor Coordinator.

A half size title sheet shall be plotted, stamped, and signed, then scanned for inclusion with the Adobe PDF set. The original title sheet shall be sent to the MDOT Project Manager.

Stand Alone Proposal Estimator's Worksheet (SAPW) shall be used to generate the .txt and .csv files necessary for import into the Trns*port bid letting software. The SAPW files shall be transmitted electronically by the method specified by the MDOT Project Manager.

Other plan sheets that are required for this project shall be completed by the Vendor. These include, but are not limited to the following plan sheets:

A. The title sheet. MDOT will provide a map of the area on a disk in our workstation format. If the map is not available, MDOT will provide a map that could be used. The Vendor shall be responsible for any revisions to the title sheet and the title sheet and map shall meet MDOT format and layout guidelines.

B. Note Sheet.

C. Typical Cross-Sections.

D. Project-specific Special Details.

E. Construction staging and traffic control plans.

F. Detail grade sheets for major intersections, ramp gores and critical areas.

G. Paving details.

H. Pavement marking plan(s).

I. Culvert detail sheet(s).

J. Vicinity and drainage map sheet.

K. Alignment sheet.

L. Witness and benchmark sheet(s).

M. Soil boring log sheet(s).

All plans, special provisions, estimates, and other project related items shall meet all MDOT requirements and detailing practices (i.e., format, materials, symbols, patterns, and layout) or as otherwise directed by the Project Manager.

All plans, specifications, and other project related items are subject to review and approval by MDOT.

## IX. UTILITIES

The Vendor shall be responsible for obtaining and showing on the plans the location and names of all existing utilities within the limits of the project. In the course of resolving utility conflicts, the Vendor shall make modifications to the plans or design details and provide assistance as directed by the MDOT Utility Permits Engineer and/or Project Manager. The Vendor shall attend any utility meetings called to ensure that the concerns are addressed on the plans involving utilities. The Vendor shall assist in the review of utility permit requests to ensure compatibility with the project. In addition, the Vendor is responsible for the tasks detailed in Attachment D.

## X. TRAFFIC CONTROL AND MDOT PERMITS

The Vendor shall be responsible for all traffic control required to perform the tasks as outlined in this Project Scope of Design Services.

The Vendor shall be responsible for obtaining up-to-date access permits and pertinent information for tasks in MDOT Right-Of-Way (ROW). This information can be obtained through Pam Sebenick, Utilities/Permits Section, Real Estate Division at (517) 373-7680.

## XI. PRE-QUALIFICATION AND SUBCONTRACTING OF CONTRACT WORK

Any task(s) for which the Vendor is not prequalified must be completed by a Subcontractor that is pre-qualified for that task(s). Any questions regarding prequalification should be directed to Phil Brooks, Prequalification Manager, at (517) 335-2514.

The Department's prequalification is not a guarantee or warranty of the subcontractors' ability to perform or complete the work subcontracted. The Vendor remains fully responsible to the Department for completion of the work according to the contract as if no portion of it had been subcontracted.

All subcontractor communications with the Department shall be through the Vendor to the MDOT Project Manager. This requirement may be waived if a written communication plan is approved by the MDOT Project Manager.

The Department may direct the immediate removal of any subcontractor working in violation of this subsection. Any costs or damages incurred are assumed by the Vendor by acceptance of the contract. It is further understood that the Vendor's responsibilities in the performance of the contract, in case of an approved subcontract, are the same as if the Vendor had handled the work with the Vendor's own organization.

## XII. VENDOR RESPONSIBILITIES (GENERAL)

1. Meet with the MDOT Project Manager to review project, location of data sources and contact persons, and review relevant MDOT operations. The Vendor shall review and clarify project issues, data needs and availability, and the sequence of events and team meetings that are essential to complete the design by the project plan completion date. Attention shall be given to critical target dates that may require a large lead time, such as geotechnical requirements, ROW submittal dates, Railroad coordination requirements, utility conflict resolution, local agency meetings, etc.

2. Maintain a Design Project Record which includes a history of significant events (changes, comments, etc.) which influenced the development of the plans, dates of submittals and receipt of information.

3. **P/PMS TASK 3330 - CONDUCT DESIGN SURVEY**

   Perform surveys as necessary to design this project (See Attachment A). The Vendor's survey shall be as complete and accurate as necessary to:

   1. Calculate and verify plan quantities to the Vendor's standards.
   2. Locate and lay out the future construction of this project.
   3. Perpetuate affected property controlling corners for monument preservation.

   As part of the design proposal, the Vendor shall present a detailed survey work plan for review, evaluation and acceptance by the MDOT Project Manager. A final survey report for review and approval by the MDOT Survey Unit **is** required. Acceptance of the survey by MDOT Design Survey does not in any way relieve the Vendor of responsibility and liability for the content of the survey.

4. There shall be a preliminary survey review to this project. This review shall be for horizontal and vertical control. The Vendor shall provide copies of all field work notes as well as least square adjustment analysis to the MDOT Project Manager as soon as it is available.

~~5. The Vendor will be responsible for providing elevation view sketches at both sides of each and every bridge in the project area. The sketch must show the elevation of the roadway at 2 feet inside of the inside edge of metal and 2 feet outside of the outside edge of metal, as well as the interior lane lines, crown point, and shoulder edges. The corresponding elevation of the structure underclearance immediately overhead must also be shown. Both directions of M-85 will be handled separately and similarly, as will the cross roads. All underclearance sketches must be shown looking up station.~~

~~6. **P/PMS TASK 3340 - CONDUCT STRUCTURE SURVEY**~~
~~See Attachment C as well as Vendor Manual Attachment I for details.~~

7. **P/PMS TASK 3360 - PREPARE BASE PLANS**
See Vendor Manual Attachment I for details.
Note: A meeting may be scheduled by the MDOT Project Manager after MDOT's review to discuss comments.

8. **P/PMS TASK 3361 - SUBMITTAL OF PRELIMINARY RIGHT-OF-WAY PLANS**
See Vendor Manual Attachment I for details.

~~9. **P/PMS TASK 3370 - PREPARE STRUCTURE STUDY**~~
~~See Attachment C as well as Vendor Manual Attachment I for details.~~

10. **P/PMS TASK 3380 – REVIEW BASE PLANS (BY MDOT)**
See Vendor Manual Attachment I for details.

11. **P/PMS TASK 3390 - DEVELOP THE CONSTRUCTION ZONE TRAFFIC CONTROL CONCEPTS**
See Vendor Manual Attachment I for details.

12. **P/PMS TASK 3510 – PERFORM ROADWAY GEOTECHNICAL INSPECTION (to determine bridge footing elevations and locate underground storage tanks, coal chutes and basements within the project limits)**
See Vendor Manual Attachment I for details.

13. ~~Develop the bridge items required for this project according to the enclosed Attachment C.~~

14. Perform storm sewer design calculations, including appropriate outlets and energy dissipation if necessary, as outlined in the MDOT Drainage Manual. Detention may be required. Detention pond design must meet, but is not limited to, local agency storm

water regulations and Michigan Department of Environmental Quality water quality permit requirements. Submit all design calculations, drainage maps, and proposed profiles to the MDOT Project Manager for review prior to the Plan Review.

15. The Vendor shall identify the locations of any water main and/or sanitary sewer on the project.

16. If water mains and/or sanitary sewers are present within the project limits, the Vendor shall evaluate the necessity for the relocation of water mains and sanitary sewers, in accordance with Design Division's Informational Memorandum #441B and #402R dated April 13, 1992. The Vendor shall submit a report to Steven J. Urda, Design Engineer - Municipal Utilities, Design Division for review and concurrence. A copy of the report shall be sent to the Project Manager. **If relocation is necessary and water main and/or sanitary sewer work is not part of the Scope of Work, contact the MDOT Project Manager immediately.**

17. **P/PMS TASK 3522 – CONDUCT DRAINAGE STUDY, STORM SEWER DESIGN, AND STRUCTURAL BEST MANAGEMENT PRACTICES (BMP)**
See Vendor Manual Attachment I for details.

~~18. **P/PMS TASK 3530 - CONDUCT STRUCTURE FOUNDATION INVESTIGATION**~~
~~See Attachment C as well as Vendor Manual Attachment I for details.~~

~~19. **P/PMS TASK 3535 – CONDUCT STRUCTURE REVIEW FOR ARCHITECHTURAL AND AESTHETIC IMPROVEMENT**~~
~~See Attachment C as well as Vendor Manual Attachment I for details.~~

20. **P/PMS TASK 3540 - DEVELOP CONSTRUCTION ZONE TRAFFIC CONTROL PLAN**
See Vendor Manual Attachment I for details.

21. **P/PMS TASK 3551 - PERFORM/REVIEW PRELIMINARY TRAFFIC SIGNAL OPERATIONS PLAN**
See Vendor Manual Attachment I for details.

22. **P/PMS TASK 3552 - DEVELOP PRELIMINARY PERMANENT PAVEMENT MARKING PLAN**
See Vendor Manual Attachment I for details.

23. **P/PMS TASK 3553 - DEVELOP PRELIMINARY NON - FREEWAY SIGNING PLAN**
See Vendor Manual Attachment I for details.

~~24. **P/PMS TASK 3570 - PREPARE PRELIMINARY STRUCTURE PLANS**~~
~~See Attachment C as well as Vendor Manual Attachment I for details.~~

25. **P/PMS TASK 3580 - DEVELOP PRELIMINARY PLANS**
See Vendor Manual Attachment I for details.

26. **P/PMS TASK 3581 - FINAL RIGHT-OF-WAY PLANS**
See Vendor Manual Attachment I for details.

27. **P/PMS TASK 4120 - Obtain Preliminary Title Commitments**
See Vendor Manual Attachment I for details.

28. **P/PMS TASK 4130 - Prepare Marked Final R.O.W. Plans**
See Vendor Manual Attachment I for details.

29. **P/PMS TASK 4140 - Prepare Property Legal Instruments**
See Vendor Manual Attachment I for details.

30. **P/PMS TASK 3590 - REVIEW PRELIMINARY PLANS (THE PLAN REVIEW) (BY MDOT)**
See Vendor Manual Attachment I for details.

31. **P/PMS TASK 3650 – RAILROAD COORDINATION**
See Vendor Manual Attachment I for details.

32. **P/PMS TASK 3670 - DEVELOP MUNICIPAL UTILITY PLANS (impacted by road work)**
See Vendor Manual Attachment I for details.

33. **P/PMS TASK 3672 – DEVELOPMENT OF SPECIAL DRAINAGE STRUCTURES PLANS**
See Vendor Manual Attachment I for details.

34. **P/PMS TASK 3675 - DEVELOP ELECTRICAL PLANS (impacted by road work)**
See Vendor Manual Attachment I for details.

35. **P/PMS TASK 3680 – OBTAIN REQUIRED MUNICIPAL UTILITY PERMITS (impacted by road work)**
See Vendor Manual Attachment I for details.

36. **P/PMS TASK 3821 - COMPLETE/REVIEW TRAFFIC SIGNAL PLANS**
See Vendor Manual Attachment I for details.

37. **P/PMS TASK 3822 - COMPLETE PERMANENT PAVEMENT MARKING PLAN**
See Vendor Manual Attachment I for details.

38. **P/PMS TASK 3823 - COMPLETE NON-FREEWAY SIGNING PLAN**
See Vendor Manual Attachment I for details.

39. **P/PMS TASK 3830 - COMPLETE THE CONSTRUCTION ZONE TRAFFIC CONTROL PLAN**
See Vendor Manual Attachment I for details.

40. **P/PMS TASK 3840 - DEVELOP FINAL PLANS AND SPECIFICATIONS**
See Vendor Manual Attachment I for details.

~~41. **P/PMS TASK 3850 - DEVELOP STRUCTURE FINAL PLANS AND SPECIFICATIONS**~~
~~See Attachment C as well as Vendor Manual Attachment I for details.~~

42. **P/PMS TASK 3870 - HOLD OMISSIONS/ERRORS CHECK (OEC) MEETING**
See Vendor Manual Attachment I for details.
The interval for plotting cross-sections and developing the grade book shall be 50 feet. The intervals for critical areas shall be 25 feet.

43. **P/PMS TASK 5010 - CONSTRUCTION PHASE ENGINEERING AND ASSISTANCE**
The Vendor may be required to provide Design Services during the construction phase of this project. If Construction Assistance is required, then a separate authorization for those services will be issued.

44. If excavation is required, submit the excavation locations which may contain contamination. The Project Manager can then proceed in requesting a Preliminary Project Assessment (PPA).

45. The Vendor shall be required to prepare and submit a CPM network for the construction of this project. See Attachment G for details.

46. **CRASH ANALYSIS:** Perform a crash analysis and determine the recommended countermeasures, (See Attachment E for details) This shall include, but shall not be limited to, performing the crash analysis, which shall include the last 3 years of reliable data for the analysis period. If there has been a fatality within those 3 years, then the analysis shall incorporate the last 7 years of reliable data. The Vendor will be furnished 3 years of data. If 7 years of data is required, the Vendor shall request, in writing, the additional crash data from the MDOT Project Manager (requests may take up to two weeks from the date the request is received to fill).

47. Determine countermeasures based on the crash analysis and <u>provide a detail drawing explaining each recommendation</u>. Determine the construction cost estimate for each countermeasure using MDOT Pay Items. Summarize the countermeasures for each crash pattern individually.

48. Review and document the roadside safety related items (i.e. guardrail, barriers, attenuators, etc.) which need to be modified or included in the project. Documentation to include location, existing type and condition, and the recommended treatment.

49. **DRAINAGE STUDY**. Perform drainage study. See Attachment F for details.

50. The Vendor representative shall record and submit type-written minutes for all project related meetings to the MDOT Project Manager within two weeks of the meeting. The Vendor shall also distribute the minutes to all meeting attendees. MDOT will provide and distribute official meeting minutes for the Base Plan Review Meeting (if meeting necessary) and The Plan Review Meeting.

51. Attend information meetings (i.e., public hearings, open houses, etc.) with the public and public officials to assist in responding to concerns and questions. May require the preparation of displays such as maps, marked-up plans, etc.

52. Prepare and submit any information, calculations, hydraulic studies, or drawings required by MDOT for acquiring any permit (i.e. NPDES, DEQ, etc), approvals (i.e. county drain commission) and related mitigation. MDOT will submit permit requests.

53. Attend any project-related meetings as directed by the MDOT Project Manager.

54. The Vendor shall assist in the review of driveway and utility permit requests, incorporate the information in the design plans, and respond within 2 weeks from receipt of the permit.

55. The MDOT Project Manager shall be the official MDOT contact person for the Vendor **and shall be made aware of all communications regarding this project**. The Vendor must either address or send a copy of all correspondence to the MDOT Project Manager. This includes all Subcontractor correspondence and verbal contact records.

56. The Vendor shall contact the MDOT Project Manager whenever discoveries or design alternatives have the potential to require changes in the scope, limits, quantities, costs, or Right-Of-Way of the project.

57. Submit all design files electronically at all submittals.

## XII. MDOT RESPONSIBILITIES (GENERAL)

A. Schedule and/or conduct the following:
   1. Project related meetings
   2. The Plan Review
   3. ~~Utility Meetings~~ (see Attachment D)
   4. Quantity summary sheets and final item cost estimates
   5. Packaging of plans and proposal

B. Furnish Special Details and pertinent reference materials.

C. Furnish prints of an example of a similar project and old plans in the area, if available.

D. Supply information on existing pavement structure as necessary.

E. ~~Coordinate any necessary utility relocation(s)~~. (see Attachment D)

F. Furnish pavement core information (Vendor shall place information on plan sheets).

G. Furnish soil boring information as necessary (Vendor shall place information on plan sheets).

H. Pavement design.

I. Furnish diskette of file and instructions for the MDOT Stand Alone Estimator's Worksheet (SAEW).

## XII. VENDOR PAYMENT

All invoices/bills for services must be directed to the Department and follow the 'then current' guidelines. The latest copy of the "Professional Engineering Service Reimbursement Guidelines for Bureau of Highways" is available on MDOT's Bulletin Board System. This document contains instructions and forms that must be followed and used for invoicing/billing; payment may be delayed or decreased if the instructions are not followed.

Payment to the Vendor for Services rendered shall not exceed the "Cost Plus Fixed Fee Not to Exceed Maximum Amount" unless an increase is approved in accordance with the contract with the Vendor. All invoices/bills must be submitted within 14 calendar days of the last date of services being performed for that invoice.

Direct expenses will not be paid in excess of that allowed by the Department for its own employees. Supporting documentation must be submitted, with the invoice/bill, for all billable expenses on the Project. The only hours that will be considered allowable charges for this contract are those that are directly attributable to the CE activities of this Project. Hours spent in administrative, clerical, or accounting roles for billing and support, are not considered allowable hours; there will be no reimbursement for these hours.

Reimbursement for overtime hours will be limited to time spent on this project in excess of forty hours per week. Any variations to this rule should be included in the price proposal

**ATTACHMENT A**
**CS 82073 - JN 87112C**
**M-85 from Miller Street to Springwells Street**
**City of Detroit**
**Wayne County**

## SURVEY SCOPE OF WORK

Survey Limits: As needed for Design, Right-Of-Way, and Construction

**NOTES**: The Vendor shall discuss the scope of this survey with an MDOT Region Surveyor or Lansing Design Support Area Surveyor before submitting a proposal.

The Vendor surveyor must contact the Region or TSC Traffic and Safety Engineer for work restrictions in the project area prior to submitting a proposal.

A **detailed Survey Work Plan** with a **spreadsheet estimate** of hours by specific survey task such as traversing, leveling, mapping, etc., **must** be included in the project proposal.

It is the responsibility of the Professional Surveyor to safeguard all corners of the United States Public Land Survey System, published Geodetic Control and any other Property Controlling corners that may be in danger of being destroyed by the proposed construction project.

**GENERAL REQUIREMENTS:**

1. Surveys must comply with **all Michigan law** relative to land surveying.

2. Surveys must be done under the **direct supervision** of a Professional Surveyor licensed to practice in the State of Michigan.

3. Work in any of the following categories of survey: Road Design, Bridge, Hydraulic, Right-of-Way, and/or Ground Control (Photogrammetric) must be completed by a survey firm which is pre-qualified by MDOT.

4. Surveys must meet all requirements of the Michigan Department of Transportation (MDOT) Design Surveys *Standards of Practice* dated April 1, 1998. Please contact the Design Survey office to clarify any specific questions regarding these standards.

5. Vendors must obtain all necessary permits required to perform this survey on any public and/or private property, including an up-to-date permit from the MDOT Utilities Coordination and Permits Section.

6. The Vendor must contact any and all Railroads prior to commencing field survey on railroad property. The cost for any permit, flaggers and/or training that is required by the Railroad

will be considered as a direct cost, but only if included in the Vendor's proposal.

7. The Vendor must adhere to all applicable OSHA and MIOSHA safety standards, including the appropriate traffic signs for the activities and conditions for this job.

8. Vendors are responsible for a comprehensive and conscientious research of all records, including MDOT records, essential for the completion of this project.

9. Measurements, stationing, recorded data, and computations must be in international feet, unless specified otherwise by the Project Manager.

10. It is appropriate to utilize the same horizontal and vertical datums used in recent and/or future projects in the "corridor." Otherwise, coordinate values shall be based upon the Michigan State Plane coordinate system NAD83 if available within four miles. If not, a local project coordinate control system is acceptable. All elevations must be based upon the North American Vertical Datum of 1988 (NAVD88) if control is available within four miles. If not, existing MDOT plan datum is acceptable. **Other datums must be approved by the MDOT Design Division, Supervising Land Surveyor.** A preliminary submittal of the adjusted Horizontal and Vertical control for the project may be submitted to the MDOT Survey Vendor Coordinator or Region Surveyor for review and acceptance as soon as it is available.

11. The survey notes must be submitted to the Design Survey Unit in 10" by 12" divided portfolios with flap covers. As many portfolios should be used as are needed to contain all of the required documents and Compact Discs (CD's). **Duplicate CD's must be included in the portfolio, with one set labeled "Region Surveyor".**

12. Each portfolio must be labeled on the outside as in the following example:

    Survey Notes for:
    Route, Location and Project Limits [I-94 under Beaubien Street]
    Control Section [S06 of 82024]  Job Number [45197D]  Date [of submittal]
    By [Name of Firm]
    Michigan Professional Surveyor [ ]
    License # [ ]

13. Each submittal is to be divided into five sections. These sections are to be labeled as follows: **Administrative, Alignment, Control**, **Property**, **Mapping**, and **Miscellaneous**.

    a. The Administrative section will include the following items: a completed copy of the MDOT Form 222(3/99) entitled "SURVEY NOTES: RECEIPT AND TRANSMITTAL"; the limits of the survey and original survey scope as determined by the Vendor Surveyor and Design Engineer; a complete synopsis of the survey **that shall include, but not be limited to** horizontal and vertical control datums used; methodology; a complete discussion of government corners recovered, perpetuated or otherwise used as part of the survey; problems encountered; and a statement from the Vendor surveyor supervising the

project certifying compliance with Michigan Department of Transportation (MDOT) Design Surveys *Standards of Practice* dated April 1, 1998; as well as documentation of all project specific meetings and /or conversations with MDOT Survey personnel.

b. The Alignment section will contain a sketch and/or drawing of the alignment, witnesses and stationing of alignment points set or found; an explanation of how the alignment was determined, whether best fit or legal; and all supporting documentation. The alignment data must be submitted both hardcopy and electronically.

c. The Control section must contain the data collected and copies of all research documents used to establish the **horizontal and vertical** reference systems for the project, and must include a thorough written explanation describing how the systems were established. This section should also contain a complete list of control coordinates, control traverse raw data, least squares analysis for both traverse and benchmarks, a separate listing of control point coordinates and witnesses for mapping and construction staking of the project. A complete Benchmark list with datum, station and offset, elevation, and description of each benchmark shall also be included. This information must be submitted in hardcopy and ASCII electronic file format on Compact Discs (CD's). Also, a sketch of the control traverse, showing any ties (government corners, property, alignment, etc.) shall be included in this section.

d. The Property section contains all information that is utilized regarding the real property affected by the project. It also includes any and all property ties necessary to establish the Right of Way and/or acquire property if required by the project. This may include copies of all **recorded** Land Corner Recordation Certificates for the government corners used or reestablished, recorded plats, recorded certified surveys, tax maps, tax descriptions, and adjacent/riparian owners, as well as surveyed coordinates.

e. The Mapping section must consist of electronic data only. The final planimetric mapping file must be submitted in .PDF format. Raw survey data is not required.

f. The Miscellaneous section contains any information not included in the previous sections. The project surveyor's report should specify any items included in this section.

14. Each category of survey must be packaged separately (i.e., Bridge surveys separate from Road surveys and Hydraulic surveys). All sheets in a portfolio must be marked with the control section and job number. CD's must be labeled with the control section, job number, data type and file names.

15. The Vendor representative shall record and submit typewritten minutes for all project related meetings to the MDOT Project Manager within two weeks of the meeting. The Vendor shall also distribute the minutes to all meeting attendees.

16. The MDOT Project Manager is the official contact for the Vendor. The Vendor must send a copy of all project correspondence to the MDOT Project Manager. The MDOT Project Manager shall be made aware of all communications regarding this project. Any survey

related questions, in regard to this project, should be directed to a Survey Vendor Coordinator or MDOT Region Surveyor.

At the completion of this survey for this project, all field survey notes, all electronic data, and all research records obtained for this project will be considered the property of MDOT and **must be sent to** the MDOT, Design Division, Supervising Land Surveyor, P.O. Box 30050, Lansing, MI 48909. Please use MDOT's Form 222(3/99) entitled "SURVEY NOTES: RECEIPT AND TRANSMITTAL" for all transmittals. A copy of this transmittal form must also be sent to the MDOT Project Manager for Design.

## WORK RESTRICTIONS

The Vendor must call the MDOT Region or TSC Traffic and Safety Engineer before beginning work to inform him of surveying activity in the area. The Vendor is advised to discuss Traffic Control scenarios with the Traffic and Safety Engineer prior to submitting a proposal.

Traffic shall be maintained by the Vendor throughout the project in accordance with Sections 812 and 922 of the Standard Specifications for Construction, 2003 edition, and any supplemental specifications. All traffic control devices shall conform to the current edition, as revised, of the Michigan Manual of Uniform Traffic Control Devices (MMUTCD).

The Vendor must use MDOT standard lane closure "maintaining traffic" typical for any and all lane closures and shoulder closures. Typical MDOT traffic control diagrams are available on line at http://www.mdot.state.mi.us/tands/plans.cfm.

## FIELD SURVEY

The purpose of the field survey is to obtain all information and data required by the project design engineer, to leave control in the field for future construction staking, and to provide a sufficient history of the area to enable the MDOT Design Survey Unit to perform dependable surveys in the future. The Vendor surveyor must discuss the scope of this survey with the project design engineer before initiating any work on this project. Notes of this meeting and a detailed Survey Work Plan with an estimate of hours broken down by specific survey task must be submitted to the MDOT Project Manager and Survey Vendor Coordinator within two weeks of this meeting.

## GOVERNMENT CORNERS

Any PLSS corners within the project limits must be recovered or established and tied to the project coordinate system.

All PLSS corners must be recorded in accordance with PA 74 of 1970, as amended and all applicable administrative rules. A copy of each recorded Land Corner Recordation Certificate must be submitted to the MDOT Design Survey Office as part of the final report. All PLSS corners located in hard surface roads must be protected by a monument box, regardless of impending construction. The Vendor shall provide to the Survey Project Manager a list of any

affected Government or Property Controlling Corners in the detailed work plan for discussion or approval.

The Vendor surveyor must contact the County Remonumentation Representative prior to beginning work on the project to inform him of proposed corner perpetuation activities, and to obtain information pertinent to PLSS corners and/or property controlling corners affected by project construction.

**FINAL REPORT**: DELIVERABLES

The final report for this project shall include the following:

1. In the first pocket of the first portfolio, MDOT's Form 222(3/99) entitled "SURVEY NOTES: RECEIPT AND TRANSMITTAL."

2. The project's Professional Surveyor's Report on company letterhead consisting of the following:

    a. A comprehensive report, written and signed by the project's Professional Surveyor, of the work performed on this project.

    b. The source and the methods used to establish the project horizontal coordinates, elevations, and the alignment(s) for this project.

    c. A detailed explanation of anything discovered during the survey of this project that may create a problem for the designer or another surveyor.

3. Documentation of horizontal and vertical datum sources.

4. Least squares analysis for horizontal and vertical control.

5. Coordinate and witness lists for the horizontal alignment ties, government corners, traverse control points, and bench marks.

6. A sketch of the alignment(s) with reference points and angle of crossing (if appropriate), stationing, horizontal coordinates, curve data, and a station equation to existing stationing if different. **The alignment must be clearly noted as legal or best-fit.**

7. Control sketch with control points, government corners and alignment plotted.

8. All field survey notes, all electronic survey data files, all calculation sketches, and all research records obtained for this project. All electronic survey data files shall be submitted on Compact Discs only, specifically labeled. No paper copy of raw survey data is required.

9. Legible copies of all **recorded** Land Corner Recordation Certificates (with Liber and Page number) filed or used for the performance of this survey, and for any PLSS corners,

including Property Controlling Corners, which may be disturbed by construction.

10. It is the responsibility of the Vendor to insure that all electronic files submitted to MDOT conform to the required format and all documents are legible.

11. The Vendor must organize and label the various sections of the portfolios as required by the MDOT Design Surveys *Standards of Practice* dated April 1, 1998.

12. It is not necessary to submit hardcopy mapping data in the survey portfolio for a Vendor survey/Vendor design in the same authorization. Final planimetric map must be submitted in .PDF format.

13. It is desirable to limit paper and to include as much electronic data as possible on Compact Disc, including scanned items, to facilitate future electronic storage and transmission of survey data. **Duplicate CD's must be included in the portfolio, with one set labeled "Region Surveyor".**

**ATTACHMENT B**
**CS 82073 - JN 87112C**
**M-85 from Miller Street to Springwells Street**
**City of Detroit, Wayne County**

# SCOPE OF SERVICES
# SUBSURFACE UTILITY ENGINEERING (SUE)

**SUE** - A branch of engineering practices that involves managing certain risks associated with utility mapping at appropriate quality levels, utility coordination, utility relocation design and coordination, utility condition assessment, communication of utility data to concerned parties, utility relocation cost estimates, implementation of utility accommodation policies, and utility design. (ASCE Standard 38-02)

ASCE Standard 38-02, "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data" shall be used as the standard for all MDOT SUE work. Depending on the project, Vender may be asked to provide some or all utility quality levels A through D.

**Utility Quality Levels** - A professional opinion of the quality and reliability of utility information. Such reliability is determined by the means and methods of the professional. Each of the four existing utility data quality levels is established by different methods of data collection and interpretation. (ASCE Standard 38-02)

SUE can be applied to varying degrees on a project depending on the situation. A project may include one or multiple utility quality levels depending on the risk factor associated with each subsurface utility. Subsurface utility data evaluation is an important part of the utility coordination and SUE process. The following section provides issues to consider when determining what specific quality level to choose. The following items are not intended to be comprehensive or exclusive; they are merely set forth as a general outline of the work that is expected.

**PRIOR TO SUBMISSION OF THE VENDER'S PRICE PROPOSAL AND SCOPE OF WORK, THE VENDER SHALL MEET WITH THE MDOT PROJECT MANAGER, DESIGN TEAM AND TSC UTILITY COORDINATOR TO FINALIZE THE EXTENT THAT SUE IS USED.**

**Utility Quality Level D** - Information derived from existing records or oral recollections. (ASCE Standard 38-02)

The Vender shall –

1. Solicit utility information as outlined in section 9.02.04 (Plan Distribution Process for Utility Coordination), Chapter 9 of the Michigan Road Design Manual.

MDOT shall -

1. Provide a preliminary list of utility companies and address located within the project limits. This list may not be 100% accurate and/or complete. The Vender is responsible to identify all known and unknown utility facilities within the project limits.

**Utility Quality Level C** - Information obtained by surveying and plotting visible above-ground utility features and by using professional judgment in correlating this information to quality level D information. (ASCE Standard 38-02)

The Vender shall –

1. Survey visible above-ground utility facilities and correlate this information with existing utility records.

MDOT shall –

1. Provide a preliminary list of utility companies and address located within the project limits. This list may not be 100% accurate and/or complete. The Vender is responsible to identify all known and unknown utility facilities within the project limits.

2. Provide Vender with utility responses gathered during the base plan distribution.

**Utility Quality Level B** - Information obtained through the application of appropriate surface geophysical methods to determine the existence and approximate horizontal position of subsurface utilities. Quality level B data should be reproducible by surface geophysics at any point of their depiction. This information is surveyed to applicable tolerances defined by the project and reduced onto plan documents. (ASCE Standard 38-02)

The Vender shall –

1. Obtain all necessary permission or permits from city, county, municipality, railroad or other entity to allow the Vender to work on existing streets, roads, and private property for the purpose of marking, measuring, and recording the location of existing underground utilities.

2. Coordinate with utility companies and the appropriate governmental jurisdictions in researching the location(s) of existing utilities. Secure all "as built" plans, plats, and other necessary data as supplied by the utility companies. While obtaining the information from the utility companies or governmental jurisdictions, ascertain the age, the size, the material type, etc.

3. Designate, record, and mark the horizontal location of all existing underground utilities

and their major laterals to existing buildings. Storm sewers are not to be designated unless specifically required by MDOT. Utility depictions shall be in accordance to the conventions indicated in MDOT's English Road Design Manual. CADD files shall be submitted to MDOT on CD, in CADD format, utilizing MDOT's current version of Microstation. All survey work will be the responsibility of the Vender. Horizontal surveying of underground utilities shall be accurate to plus or minus one foot.

4. Provide all necessary equipment and support personnel, including surveying capability, to secure the data outlined in this section.

MDOT shall -

1. Provide survey control for the purposes of tying the horizontal position of the designated utilities to the State Plane Coordinate System and the project limits, including side roads. If available, MDOT will also furnish highway plans showing topography, horizontal alignments, etc. in an electronic or paper form.

2. Provide a preliminary list of utility companies and address within the project limits. This list may not be 100% accurate and/or complete. The Vender is responsible to identify all known and unknown utility facilities within the project limits.

3. If requested, provide a letter of introduction to utilities, to assist the Vender in establishing the need for their presence in a particular area.

**Utility Quality Level A** - Precise horizontal and vertical location of utilities obtained by the actual exposure (or verification of previously exposed and surveyed utilities) and subsequent measurement of subsurface utilities, usually at a specific point. Minimally intrusive excavation equipment is typically used to minimize the potential for utility damage. A precise horizontal and vertical location, as well as other utility attributes, is shown on plan documents. Accuracy is typically set to 15-mm (approximately 5/8") vertical and to applicable horizontal survey and mapping accuracy as defined or expected by the project owner. (ASCE Standard 38-02)

The Vender shall -

1. Review plans furnished by MDOT showing areas requiring test holes within the project limits. Recommend changes to MDOT's location plan based upon SUE best practices. Obtain additional company records as required.

2. Obtain all necessary permission or permits from city, county, municipality, railroad or other entity to allow the Vender to work on existing streets, roads, and private property for the purpose of marking, measuring, and recording the location of existing underground utilities.

3. Comply with any and all State law requirements for notification prior to excavation. In conformance with Public Act 53 of 1974, Michigan's one call damage prevention system

"Miss Dig", the Vender is required to phone 1-800-482-7171 a minimum of three full working days (excluding Saturdays, Sundays, and Holidays) prior to excavating near a utility.

4. Coordinate with utility company inspectors as required.

5. Neatly cut and remove existing pavement with the cut area not to exceed 225 square inches. Excavate using a method enabling vertical and horizontal exploration through this cut.

6. Excavate test holes in such a manner as to prevent any damage to wrappings coatings, or other protective coverings, such as vacuum excavation, hand digging, etc.

7. Be responsible for any damage to the utility during excavation.

8. Backfill with approved material around utility structure.

9. Furnish, install, and color code a permanent above ground marker (i.e. P.K. nail, peg, steel pin, or hub) directly above the centerline of the structure and record the elevation of the marker.

10. Provide a permanent restoration of the pavement within the limits of the original cut at the time of backfill. If the test hole is excavated in an area other than the roadway pavement, the area disturbed shall be restored to equal or better than the condition before excavation.

11. Tie all vertical elevations to a minimum of two checked benchmarks or available datum. The accuracy of these turns shall be in accordance with established surveying practices. Utility locations shall be submitted to MDOT on CD, in CADD format, utilizing MDOT's current version of Microstation. Vertical surveying of underground utilities shall be accurate to 5/8".

12. Maintain the quality of the permanent pavement restoration for 3 years.

MDOT shall -

1. Provide survey control for the purposes of tying the horizontal and vertical position of the designated utilities to the State Plane Coordinate System and the project limits, including side roads. If available, MDOT will also furnish highway plans showing topography, horizontal alignments, etc. in an electronic or paper form.

2. Furnish preliminary highway plans showing areas requiring test holes.

3. If requested, provide a letter of introduction to utilities, to assist the Vender in establishing the need for their presence in a particular area.

## Permits and Traffic Control

An annual permit (MDOT form 2205-B) and certificate of insurance (MDOT form's 2020 & 2216) shall be required from all SUE Venders. These shall be submitted to MDOT's Lansing Real Estate Division. An advance notice of permitted activity (MDOT form #2204) shall be submitted to the appropriate TSC office not less than five days prior to working within the right of way.

All maintaining traffic provisions of the permit shall be followed, as well as conformance to the requirements of Part 6 (C) of the Michigan Manual of Uniform Traffic Control Devices. If the site conditions are not addressed in the Michigan Manual of Uniform Traffic Control Devices, the Vender shall submit a written traffic plan to the TSC for approval. The Vender shall be responsible for providing all materials, equipment and personnel necessary for the maintenance of traffic. This includes, but is not limited to; temporary traffic control signs, channelizing devices, arrow panels, traffic barriers (i.e. temporary concrete barriers if required), impact attenuators, flaggers, temporary pavement markings, etc. and all other equipment and/or labor necessary to effectively implement the approved maintenance of traffic plan.

Due to the amount of traffic on certain highways, the Vender may be required to work off peak hours. In addition, the Vender shall not work on weekends, national holidays, state holidays, or the days proceeding said holidays without the written permission from the jurisdictional region/TSC office.

## Data Management

Data management involves assembling and presenting designating and locating information in a format compatible to MDOT's current version of Microstation.

## Time to Complete Work

The Vender shall complete and deliver SUE services within a mutually agreed upon time after the notice to proceed is given.

## Deliverables and Certification

1. The accuracy of the final deliverables shall be certified by a licensed professional civil engineer and/or licensed professional surveyor. Both of these professionals must be registered in the State of Michigan. The Vender shall be responsible for the accuracy of all information presented to MDOT.

2. Copies of all deliverables shall be sent to all appropriate MDOT personnel. This may include the Project Manager, TSC Utility Coordinator and the Lansing Utility

Coordination and Permits Section.

3. Provide the following test hole information (via spreadsheet format) to MDOT on CD, in CADD format, utilizing MDOT's current version of Microstation. A paper copy shall also be provided as a final deliverable.

   a. Elevation of top and/or bottom of utility tied to datum of the furnished plan.

   b. Elevation of existing grade over the utility at the test hole.

   c. Horizontal location referenced to project coordinate datum.

   d. Outside diameter of pipe or width of duct banks and configuration of non-encased multi-conduit systems.

   e. Utility structure material composition and condition, when possible.

   f. Size, type and owner of utility facility.

**ATTACHMENT C**
**CS 82073 - JN 87112C**
**M-85 from Miller Street to Springwells Street**
**City of Detroit**
**Wayne County**

**Attachment C left intentionally blank.**

**ATTACHMENT D**
**CS 82073 - JN 87112C**
**M-85 from Miller Street to Springwells Street**
**City of Detroit**
**Wayne County**

## UTILITY COORDINATION SCOPE OF WORK

For the purpose of this scope "utility coordination" means the Vendor shall participate in all stages of the Department's utility coordination process. It is the intent of this scope that the Vendor selected as a result of this solicitation employ qualified, competent, and experienced personnel to provide the services set forth herein.

The Vendor selected shall be capable of providing the following services pertaining to utility coordination work, including, but not limited to:

1. Identification of existing/proposed utility owners and their facilities.
2. Resolution of conflicts between utility facilities and proposed construction.
3. Documentation of utility company activities.
4. Evaluation and certification of utility relocation schedules for compatibility to the Department's project schedule.

### GENERAL REQUIREMENTS

The Vendor is responsible for taking the necessary steps to insure appropriate utility coordination for the project. The Vendor is expected to participate in all stages of the MDOT utility coordination process, including but not limited to: scope meetings, design meetings, pre-advertisement meetings, pre-construction meetings, field inspections, utility permit reviews, plan reviews and construction phase services. In addition, the Vendor shall provide the following services:

1. Perform subsurface utility engineering (SUE) according to the scope of work that is part of this contract (see Attachment B for details). SUE deliverables are to be included in the proposed schedule.
2. Schedule and conduct utility meetings, as necessary, to resolve conflicts between utility facilities and proposed construction. Moderate and record meeting minutes, distribute to all in attendance plus the appropriate MDOT Region/TSC Utilities/Permits Engineer and the MDOT Project Manager. The meetings, as a minimum will identify conflicts, develop utility relocation schemes, discuss possible design modifications, review the schedule of MDOT construction activities, and develop a coordinated utility activity schedule. Include resolution of all utility conflicts and utility coordination needs in the proposed project schedule.
3. Provide bi-weekly status reports to the appropriate MDOT Region/TSC Utilities/Permits Engineer, MDOT Project Manager and the MDOT Lansing Utilities-Permits Office and any other appropriate personnel as directed by the MDOT Project Manager, Mark Sweeney. The report, at a minimum, should display the control

section, project number, project location and description, report date, status of each utility and date information is expected back or when action is to be taken. Develop and maintain a status report (ie. Spreadsheet, log, etc.) regarding the project's utility status. Depending on the project, these status reports may be reduced to monthly, at the request of the Project Manager.

4. Conduct or participate in meetings convened for the purpose of utility betterments (ie. new water main and communication facilities, etc.). Develop corridor schemes and utility construction schedules.
5. Provide technical assistance to MDOT's Design Division and design vendors regarding utility relocations and project impacts. Assure that all proposed utility relocation work, either private or municipal force account work, is compatible with the proposed project and meets MDOT and other applicable standards.
6. Review utility relocation plans for compatibility with the proposed MDOT project. Confirm that all necessary utility relocation permits are submitted to the appropriate MDOT Region/TSC Utilities/Permit Engineer for issuance. Follow-up with utility companies to ensure that their utility relocations are progressing and will not adversely affect the project's schedule.
7. Prepare a Notice to Bidders and any necessary, Utility Coordination Clauses. These need to be submitted to the appropriate MDOT Region/TSC Utilities/Permits Engineer by a deadline to be determined by the MDOT Project Manager.
8. The Vendor may be required to provide Design Services during the construction phase of this project, including utility alignment staking and inspection. If Construction Assistance is required, then a separate authorization for those services will be issued.

**PLAN DISTRIBUTION AND UTILITY INFORMATION PROCURMENT**

The Vendor will be required to distribute plans on an as needed basis to the utility companies. At a minimum the following distributions shall take place:

1. The Vendor shall verify that base plans have been sent to utility companies within the project area. This will consist of an informational letter and two sets of preliminary plans (some companies may require four sets), describing the scope of the project. Initial contact should be made with all utility companies that may have facilities in the project area. Four to six weeks should be allowed for utility companies to respond back with one set of marked plans showing their facilities, copies of their "As Built" plans, or written confirmation that they have no facilities in the project area. This information will then be forwarded to the Design Project Manager.
2. Collect and compile utility company responses from each utility company. Follow up with non responsive utility companies to ensure a response is received. Establish design contacts and if different, construction contacts for the project. Review the plan note sheets and verify with the utility company that the utility company names, addresses, contacts and phone numbers are accurate.
3. Distribute Department plans at approximately 50 percent completion. These plans should have the utility locations plotted and provide sufficient detail for utility companies and the utility coordinator to determine conflicts (ie: storm sewer design).

The Department's standard plan distribution letter, authorizing utility companies to begin preliminary engineering and also notifying the utility company of their responsibility to relocate facilities under Act 368, P.A. of 1925, needs to be included with this plan distribution.

4. Copies of any correspondence sent to any utility company should be sent to the appropriate MDOT Region/TSC Utilities/Permits Engineer, MDOT Project Manager and the MDOT Lansing Utilities-Permits Office and any other appropriate personnel unless otherwise directed.

**PERMIT REVIEWS**

Review utility relocation plans and new permit applications for compatibility with the proposed MDOT project. Confirm that all necessary utility relocation permits are submitted to the appropriate MDOT Region/TSC Utilities/Permits Engineer for issuance. To ensure that utility relocations are progressing and will not adversely affect the project's schedule, follow up with the appropriate utility companies.

**REIMBURSABLE UTILITY RELOCATIONS**

Ensure that eligible reimbursable utility relocations, under Federal-Aid Policy Guide 23 CFR 645A and 645B and MDOT Utility Accommodation Policy are identified. Confirm that the utility companies submit the necessary information (ie. Permit applications, property rights, estimates, etc.) as to meet the aforementioned guidelines to the appropriate MDOT Region/TSC Utilities/Permits Engineer for processing and authorization.

**DESIGN ANALYSIS AND RECOMMENDATIONS**

When the Vendor has obtained all necessary utility information, the Vendor shall determine to what extent the proposed roadway and/or bridge improvements will impact the existing utilities. The Vendor shall prepare a report outlining avoidance alternates, required adjustments, relocations, and cost estimates to perform those relocations.

**STAKING, PERMIT INSPECTION AND CONSTRUCTION PHASE SERVICES**

The Vendor may be requested to provide any needed alignment staking for utility relocations. Staking shall be consistent with the project's survey control. The Vendor will be responsible for the accuracy, per applicable survey standards, when performing survey work. The Vendor performing any surveys must be on the Department's pre-approved surveyors list.

The Vendor may be asked to oversee and inspect utility relocations. Reports of this activity and the Department's Permit Inspection Report (Form #2213) will need to be sent to the appropriate Region/TSC Utilities/Permits Engineer.

Construction phase services may be requested. This may include attending the preconstruction meeting and presenting the utility coordination work. It also may involve working with the Department's Resident Engineer and utility company to resolve utility conflicts discovered

during construction. If Construction Assistance is required, then a separate authorization for those services will be issued.

## CERTIFICATION

This certification will include all necessary copies of correspondence and will be signed by a duly authorized representative of the firm. After certification, the project files will be forwarded to the appropriate MDOT Region/TSC Utilities/Permits Engineer. The Vendor will certify to the MDOT Region/TSC Utilities/Permits Engineer the following:

1. All utility work has been completed or that all arrangements have been made for it to be undertaken and completed as required for proper coordination with the projects construction schedule.
2. Plans were sent to all utility agencies, responses were received, and no utility relocation is required.

## DEPARTMENT RESPONSIBILITIES

1. The MDOT Region/TSC Utilities/Permits Engineer or appropriate representative will notify the Vendor when to proceed with work by issuance of a work authorization. Work authorizations shall identify the project's location, scope, and required "due dates" to complete the utility coordination.
2. Provide the Vendor, when appropriate, survey control to be used for any required surveying the Vendor may need to perform.
3. Provide a preliminary list of utility companies within the project limits. This list may not be 100% accurate and/or complete. The Vendor is responsible to identify all known and unknown utility facilities within the project limits.
4. Provide the Vendor with any appropriate Department form letters.
5. The Department shall have the authority to suspend the work, in full or in part, for such period or periods as may be deemed necessary due to conditions that are considered unfavorable work performance, or for the failure on the part of the Vendor to comply with any or all provisions of the contract. Such suspension shall be ordered in writing, giving in detail the reasons for the suspension.

**ATTACHMENT E**
**CS 82073 - JN 87112C**
**M-85 from Miller Street to Springwells Street**
**City of Detroit**
**Wayne County**

## CRASH ANALYSIS REPORTS

The Vendor shall provide MDOT with a Crash Analysis Report, which shall detail the safety performance of the project location (includes not only the mainline, but all ramps, major and minor intersections, and crossovers within the project limits), and provide detailed graphic depiction of countermeasures, and cost/benefit analysis for crash concentration locations.

The Crash Analysis Report shall, at a minimum, compare the project location features (mainline, ramps, major intersections, minor intersections and crossovers) to regional averages, identify crash concentration locations, examine crash concentration locations for crash patterns and provide countermeasures for correctable crash patterns. The Vendor shall combine a thorough review of computer-based crash records with field reviews of the roadway's characteristics (geometric and operational features shall be specifically noted), to identify crash concentration locations. The Vendor shall provide a Draft Crash Analysis Report and upon review and comment by MDOT, the Vendor shall make any changes identified and submit a Final Crash Analysis Report.

The Vendor shall at a minimum review and analyze the most recent three years of MDOT crash data. If there is a fatality within those three years, the Vendor shall review and analyze an additional 7 years of crash data. For the analysis, the Vendor shall stratify the data by location and the crash data shall also be aggregated by similar roadway segment characteristics. The Vendor shall quarry SEMCOG to determine regional crash averages which will provide a normative measure of comparison to aid in the identification of crash concentration locations.

The Vendor shall identify crash concentration locations and determine crash patterns. Based on the crash patterns identified for each crash concentration location the Vendor shall develop proposed crash countermeasures. The countermeasures shall be graphically depicted, to scale, with sufficient detail to determine the countermeasures impact to the existing roadway and the proposed roadway improvement.

The countermeasures may range from simple sign / marking / signal modifications up through substantial reconstruction. The Vendor shall present countermeasures stratified into short and long-term solutions. The Vendor shall provide a construction cost estimate for each countermeasure using MDOT Pay Items and shall clearly identify any Right-Of-Way impacts a countermeasure may have. The Vendor shall provide a full cost/benefit analysis for each countermeasure. The Vendor shall also evaluate the crash impacts on design exceptions sought.

**ATTACHMENT F**
**CS 82073 - JN 87112C**
**M-85 from Miller Street to Springwells Street**
**City of Detroit**
**Wayne County**

## SCOPE OF WORK FOR DRAINAGE STUDY

The Vendor is to conduct a site investigation of the drainage within the limits of the project. The purpose of this study is to determine where hydraulic analyses and/or surveys are required. If further hydraulic analyses and/or surveys are required, then MDOT will issue a separate authorization for those services.

Work Steps:

1. Prepare a typed report summarizing the drainage affected by the project. For every culvert carrying natural drainage within the MDOT Right-Of-Way, provide the following information:

    a. Stream name
    b. Exact location of the culvert, including Section, Town, Range, and Township
    c. Size, type, and condition of culvert
    d. Any evidence of scour or erosion
    e. Any evidence that the structure is undersized
    f. Any county drains
    g. Photographs of the upstream face, downstream face, looking upstream, and looking downstream, as well as any drainage structures, buildings, or farmland that may affect or be affected by the culvert
    h. Drainage area, including delineation on a USGS quadrangle map (or local contour map, if more up-to-date)
    i. Type of work proposed, including existing and proposed lengths

2. The report must include any other effects on the drainage; for example, a raise in road grade or widening.

3. Submit the drainage study to the MDOT Project Manager for review and approval by the Design Engineer - Hydraulics/Hydrology.

4. Receive any items returned by the MDOT Project Manager as incomplete or deficient.

5. Make necessary changes and resubmit the incomplete items, including a written response to all comments.

**ATTACHMENT G**
**CS 82073 - JN 87112C**
**M-85 from Miller Street to Springwells Street**
**City of Detroit**
**Wayne County**

## CONSTRUCTION CRITICAL PATH NETWORKS

## I. INTRODUCTION

The Vendor is required to submit a Construction Critical Path Network at various points in the design process. Refer to the following:

P/PMS TASK 3580 - DEVELOP PRELIMINARY PLANS

P/PMS TASK 3830 - COMPLETE THE CONSTRUCTION ZONE TRAFFIC CONTROL PLAN

P/PMS TASK 3840 - DEVELOP FINAL PLANS AND SPECIFICATIONS

Construction Critical Path Networks are often needed to develop the progress schedule for a project. They are required on any project designated to include an Incentive/Disincentive or Special Liquidated Damages clause. Construction Critical Path Networks are also recommended for projects with the following characteristics:

1. New construction.
2. Major reconstruction or rehabilitation on an existing roadway that will severely disrupt traffic.
3. Unique or experimental work.
4. More than one construction season.
5. Complex staging (multiple stages with traffic shifts).

As noted in MDOT's Construction and Technology Instructional Memorandum 1997-7, Progress Schedule Determinations/Critical Path Rates,

> *preparation of a Critical Path is a requirement on <u>all</u> Vendor-designed projects, regardless of the project type or complexity*

The MDOT Resident Engineer assigned to the project should be consulted when developing Construction Critical Path Networks.

MDOT requires the precedence diagramming method. The Vendor will submit this network in MPX version 4.0.

## II. NETWORK DEVELOPMENT

The network will be defined using the following steps.

1. Activity definition.
2. Activity sequencing.
3. Duration estimation.
4. Schedule development.

### 1. ACTIVITY DEFINITION

The Vendor will define the specific activities in enough detail so that the proper objectives will be met. The Vendor must identify assumptions (those factors considered true, real or certain). Supporting detail for the activities should be documented and organized as needed to simplify the review of the activities by MDOT personnel.

The Construction Critical Path Network must start with the **Letting Date** as the first activity and terminate with the **End of Project** as the finish activity.

A sufficient number of activities will be required with sufficient detail so that the controlling construction operation(s) may be identified. Notation on each activity shall include a brief work description and activity time duration.

### 2. ACTIVITY SEQUENCING

Activity sequencing involves identifying and documenting interactivity dependencies. The Vendor must sequence activities accurately to support later development of a realistic and achievable construction schedule. Two types of dependencies should be considered. Mandatory dependencies are inherent in the nature of the work being done, such as construction sequencing. Discretionary dependencies are based on a knowledge of the work to be done. Constraints are used to show how the activities relate to each. The Vendor must include documentation supporting all discretionary dependencies used in the project. All activities must lead to another activity. Only Start to Start, Finish to Finish and Finish to Start relationships will be allowed. All logic shall show how the given activity is dependent on its preceding activities.

### 3. DURATION ESTIMATION

After the Vendor has sequenced the activities, the Vendor should determine the activity duration. Activity duration estimating involves assessing the number of work periods likely to be needed to accomplish each activity. Duration (working days): No activity will have a duration greater than 20 working days unless approved by the Engineer. Activities that will be allowed to exceed 20 working days include, but are not limited to, working drawing approvals or other activities not under the control of the Contractor. If requested by the Engineer, the Vendor shall explain the reasonableness of activity time durations. The approved MDOT production rates will be used in estimating activity

duration. These are available in the Supplemental Information section of this attachment. The Vendor must document and submit all assumptions made during the duration estimation to MDOT.

### 4. SCHEDULE DEVELOPMENT

The activity sequencing, duration estimations and the calendars are combined to create the construction schedule. During the development of the schedule the Vendor will verify:

1. The required schedule to build the project.
2. The constructability of the project.
3. If the maintaining traffic scheme will work.
4. If seasonal limitations will affect the construction.
5. Any other project specific considerations.

The MDOT Calendars will be used by the Vendor in developing the network. The calendars are based on a 4, 5 or 6 day work week. The MDOT Calendars are included in the Supplemental Information section of this attachment.

At this point there should be no negative float in the network. If there is, there is an error in the network and the error must be corrected before network submittal.

All summary tasks shall be removed prior to submittal to MDOT Project Manager

## III. DELIVERABLES

After this final step the design Vendor will submit the finished CPM schedule to MDOT

### 1. Documents

A. 11" x 17" plot of the network. The critical path shall be clearly identified on the plot. A larger plot may be required for complex networks.

B. Work Day / Completion Date Determination Worksheet.

C. List of any other assumptions or controlling factors used in creating the network. For example, permit or maintaining traffic restrictions.

### 2. Electronic Format

This section sets the requirements for the eletronic submittal of the Vendor's Construction Network. All networks shall be submitted on a 3.5 inch floppy disk (or via E-mail) using one of the following formats:

A. **Standard Electronic Media Format:** This is a standard ASCII text file containing the data elements below, in the order specified. This file can be created using any text editor or word processing application ( i.e., MS-Word, WordPerfect, Notepad, Write) but must be saved as an ASCII file.

The **first line** will provide a descriptive header describing the submittal and containing:

Control Section
Job Number
Route
Vendor name
Date of Submittal

The next line will be **blank**, followed by multiple data lines.

Each **data line** will contain one record pertaining to one task of the job. Separate data fields by a comma. Fields within each task line are as follows:

(Note that the term "task" is synonymous with "activity." Leave fields that are not required blank)

(1) Task # (Job # followed by a hyphen followed by this task's unique 4 digit task number. This is the Preceding Event Activity Code)
(2) Description of Task, Milestone or Hammock, blank if this record is a constraint
(3) Calendar (see attached list)
(4) Duration of task, blank for constraints
(5) Task # of the next task (Succeeding Event) - leave blank if this record is not a constraint or hammock
(6) Type of constraint (FS, SS, FF) - leave blank if this record is not a constraint.
(7) Delay, if required
(8) Original "Baseline" Start Date
(9) Original "Baseline" Finish Date
(10) Current (forecast) Start Date (early start)
(11) Current (forecast) Finish Date (early finish)
(12) Estimated completion date (if different from early start + current duration)
(13) Late Start Date
(14) Late Finish Date
(15) Actual Start Date
(16) Actual Finish Date

Example - each line contains the following:

Task # (preceding event), Description, Calendar, Duration, Next Task # (succeeding event), Constraint Type, Delay, Baseline Start, Baseline Finish, Early Start, Early Finish, Estimated Completion Date, Late Start, Late Finish, Actual Start, Actual Finish, Total Float.

B. **Primavera Project Planner(P3) 2.0 Export Procedure:** Users who have Primavera Project Planner(P3) version 2.0 can automatically create a export file by following the export procedure below. **Users having an older version of Primavera may use the applications export feature only if they are able to include all the data elements listed in the version 2.0 format.**

**1.** Choose Tools, Project Utilities, **EXPORT**
**2.** Click **ADD**, then click **OK** to accept the next sequential ID number, or type a unique number to identify the specifications and click **OK**
**3.** Enter a description for the specification in the Title field
**4.** Specify data items to export

**Activities**
- Select **Contents of List**
- Use the Description column to specify which data items to export
- To add items, click the right mouse button in the Description column and choose from the list. Suggested Items include: **Activity ID, Activity Description, Actual Start, Actual Finish, Calendar ID, Early Start, Early Finish, Late Start, Late Finish, Original Duration.**
- Select **All Current, All Target**, or **All Target2**
- Set Description Length to 48

**OR**

**Constraints**
- Select **Successor relationships** - Choose this option to export Activity IDs and their corresponding successors only. Lags and relationship types will also be displayed in this output file.

**5.** Click **FORMAT** in Export Dialog Box
**6.** In the Output file section, enter a new name and path (ex. A:\actexp or A:\conexp). Do not include a file extension.
**7.** In the type field, click the minimize button and choose the **[.PRN] - ASCII** file format for the output file.
**8.** Select **CALENDAR** for Date Format
**9.** Set ASCII Output Field Separation to **1** and Blank column width to **0**
**10.** Click **RUN**
**11.** In the Output Options dialog box, click on **OK**

**NOTE: A COMPLETED FILE EXPORT WILL CONSIST OF 2 EXPORT FILES (ACTIVITIES & CONSTRAINTS)**

C. **Microsoft Project Export Procedure:** Users of Microsoft Project Version 4.0 and above can create a Microsoft Project Exchange (MPX) file by following the procedure below.

**1.** Choose File, Save As from the main menu
**2.** In the Save File as Type box Select **MPX 4.0**
**3.** On the drive box select a: or whichever drive is the 3.5" Floppy drive
**4.** Click on **OK**

This saves the file in MPX format.

D. **Primavera Sure Track:** Users of Sure Track Version 2.0 and above can create a Microsoft Project Exchange (MPX) file by following the procedure below.

**1.** Choose File, Save As from the main menu
**2.** In the filename box input a filename
**3.** In the Save File as Type box Select **MPX**
**4.** On the drive box select a: or whichever drive is the 3.5" Floppy drive
**5.** Click on **OK**

This saves the file in MPX format

E. **Scitor Project Scheduler 7 Export Procedure:** Users of Scitor Project Scheduler Version 7 and above can create a Microsoft Project Exchange (MPX) file by following the procedure below.

**1.** Choose File, Save As from the main menu
**2.** In filename box select a filename
**3.** In the Save File as Type box Select MPX
**4.** On the drive box select a: or whichever drive is the 3.5" Floppy drive
**5.** Click on **OK**

This saves the file in MPX format

F. **Export Files with Other Scheduling Applications:** Most scheduling packages have export functions similar to those described above. If the Vendor chooses to use packages with export capabilities, they shall include all items listed in the Standard Media Format in a text or ASCII type file.

## IV. SUPPLEMENTAL INFORMATION

## A. MDOT CRITICAL PATH-CONSTRUCTION TIME ESTIMATES

| | |
|---|---|
| **Drainage** | |
| Cross Culverts | |
| Rural Highways | 44 yd./day |
| Expressways | 55 yd./day |
| Large Headwalls | 5 days/unit |
| Slab or Box Culverts | 5 days/pour |
| Plowed in Edge Drain (production type project) | 4921 yd./day |
| Open Graded Underdrain (production type project) | 1312 yd./day |
| Sewers | |
| 0m-5m(up to 60 in. (1500mm)) | 44 yd./day |
| 0m-5m(over 60 in. (1500mm)) | 27 yd./day |
| 5m-over(up to 60 in. (1500mm)) | 27 yd./day |
| 5m-over(over 60 in. (1500mm)) | 22 yd./day |
| Jacked-in-place | 14 yd./day |
| including excavation pit & set up | min. 5 days |
| Tunnels | |
| hand mining | 9 yd./day |
| machine mining | 22 yd./day |
| including excavation pit & set up | min. 5 days |
| Manholes | 3 units/day |
| Catch Basin | 4 units/day |
| **Utilities** | |
| Water Main(up to 16 in. (400mm)) | 109 yd./day |
| Flushing, Testing & Chlorination | 4 days |
| Water Main(20 in. (500mm) – 40 in. (1050mm)) | 27 yd./day |
| Flushing, Testing & Chlorination | 5 days |
| Order & Deliver 24 in. (600 mm) HP Water Main | 50 days/order |
| Gas Lines | 109 yd./day |

| **Earthwork and Grading** | **Metro Exp** | **Rural** |
|---|---|---|
| Embankment(CIP) | 1962 $yd.^3$/day | 6932 $yd.^3$/day |
| Excavation and/or Embankment(Freeway) | 1962 $yd.^3$/day | 12033 |

| | | yd.$^3$/day |
|---|---|---|
| Excavation and/or Embankment(Reconstruction) | 981 yd.$^3$/day | 4970 yd.$^3$/day |
| Embankment(Lightweight Fill) | 392 yd.$^3$/day | 785 yd.$^3$/day |
| Muck(Excavated Waste & Backfill) | 1962 yd.$^3$/day | |
| Excavation(Widening) | 656 yd./day | |
| Grading(G & DS) | 820 yd./day | |
| Subbase and Selected Subbase(up to 8 yd. (7.4m)) | 656 yd./day | |
| Subbase and Selected Subbase(8 yd. (7.4 m) & over) | 492 yd./day | |
| Subgrade Undercut & Backfill | 1962 yd.$^3$/day | |
| Subbase & Open-Graded Drainage Course | 492 yd./day | |

**Surfacing**

| | |
|---|---|
| Concrete Pavement (8 ft. (7.3m)) | 492 yd./day |
| Including Forming & Curing | min. 7 days |
| Bituminous Pavement (8 ft. (7.3m)) | 1312 yd./day/course |
| Concrete Ramps(5.6 yd. (4.9m)) | 328 yd./day |
| Including Forming & Curing | min. 7 days |
| Curb(1 side) | 820 yd./day |
| Concrete Shoulder-Median | 1435 yd.$^2$/day |
| Bituminous Shoulders(1 side per course) | 820 yd./day |
| Sidewalk | 215 yd.$^2$/day |
| Sidewalk(Patching) | 78 yd.$^2$/day |

**Structures**

| | |
|---|---|
| Sheeting(Shallow) | 33 yd./day |
| General Excavation at Bridge Site | 981 yd.$^3$/day |
| Excavation for Substructure(Footings) | 1 unit/day |
| Piles(12m) | 15 piles/day |
| Substructure(Piers & Abutments) | 5 days/unit |

Order and Delivery of Beams

| | |
|---|---|
| Plate Girders | 100-120 days/order |
| Rolled Beams | 90-120 days/order |
| Concrete Beams | 50 days/order |

| | |
|---|---|
| Erection of Structural Steel | 3 days/span |
| Bridge Decks | |
| Form & Place Reinforcement(66 yd. (60m) Structure) | 15 days |
| Pour Deck Slab(1 1/5 days/pour) | 2 days/span |
| Cure | 14 days |
| 2 Course Bridge Decks | |
| Add 9 days for Second Course Latex | |
| Add 12 days for Second Course Low Slump | |
| Sidewalks and Railings | |
| Sidewalks and Parapets | 5 days/span |
| Slip Formed Barriers | 2 days/span |
| Clean Up | 10 days |
| Pedestrian Fencing | |
| Shop Plan Approval & Fabrication | 1-2 months |
| Erection | 1 week/bridge |
| Rip Rap Placement | |
| Bucket Dumped | 504 $yd.^3$/day |
| Bucket Dumped and Hand Finished | 171 - 684 $yd.^3$/day |
| **Retaining Walls** | 1 Panel/day<br>min. 10 days |
| **Railroad Structures** | |
| Grade Temporary Runaround | 981 $yd.^3$/day |
| Ballast, Ties & Track | 55 yd./day |
| Place Deck Plates | 5 days/span |
| Waterproof, Shotcrete & Mastic | 5 days/span |
| **Railroad Crossing Reconstruction** | 10-15 work days |
| (depends on whether concrete base is involved) | |
| **Temporary Railroad Structures** | |
| Order & Deliver Steel | 55 days/order |
| Erect Steel | 1 day/span |
| Ties and Track | 3 days/span |
| **Pumphouse** | |
| Structure | 30 days/structure |
| Order & Deliver Electrical & Mechanical Equipment | 90 days |

| | |
|---|---|
| Install Electrical & Mechanical Equipment | 30 days |

**Miscellaneous**

| | |
|---|---|
| Removing Old Pavement | 66 yd./day |
| Removing Old Pavement for Recycling(8 yd. (7.3m)) | 492 yd./day |
| Crushing Old Concrete for 6A or OGDC | 1488 tons/day |
| Removing Trees(Urban) | 15 units/day |
| Removing Trees(Rural) | 30 units/day |
| Removing Concrete Pavement | 538 $yd.^2$/day |
| Removing Sidewalk | 299 $yd.^2$/day |
| Removing Curb & Gutter | 492 yd./day |
| Removing Bituminous Surface | 1914 $yd.^2$/day |
| Conditioning Aggregate | 984 yd./day |
| Bituminous Base Stablizing | 2990 $yd.^2$/day |
| Ditching | 656 yd./day |
| Trenching for Shoulders | 820 yd./day |
| Station Grading | 667 yd./day |
| Clearing | 9568 $yd.^2$/day |
| Restoration(Topsoil, Seeding, Fertilizer & Mulch) | 1973 $yd.^2$/day |
| Sodding | 2512 $yd.^2$/day |
| Seeding | 47840 $yd.^2$/day |
| Guard Rail | 252 yd./day |
| Fence(Woven Wire) | 394 yd./day |
| Fence(Chain Link) | 164 yd./day |
| Clean Up | 656 yd./day |

| | |
|---|---|
| Concrete Median Barrier | 328 yd./day |
| Cure | min. 7 days |
| Reroute Traffic(Add 4 days if 1st item) | 1 day/move |
| Concrete Glare Screen | 492 yd./day |
| Light Foundations | 6 units/day |
| Order & Delivery | 6-8 week/order |
| Remove Railing & Replace with Barrier(1 or 2 decks at a time) | 4 days/side |
| Longitudinal Joint Repair | 1750 yd./day |
| Crack Sealing | 5249 yd./day |
| Joint and Crack Sealing | 547 yd./day |
| Repairing Pavement Joints - Detail 7 or 8 | 219 yd./day |

| | |
|---|---|
| Seal Coat | 6999 lane yd./day |
| Diamond Grinding/Profile Texturing Concrete | 3947 $yd.^2$/day |
| Rest Area Building | |
| Order Material | 3 months |
| Construct Building | 9 months |
| Tower Lights | |
| Order and Deliver Towers | 100 days |
| Weigh-In-Motion | |
| Order and Deliver Materials | 1 month-6weeks |
| O & D with Installation | 3 months |
| Raised Pavment Markers | 300 each/day |
| Attenuators | 2 each/day |
| Shoulder Corrugations, Ground or Cut | 5 - 6 mi./side/day |
| Aggregate Base | 3468 $yd.^2$/day |
| Aggregate Shoulders | 458 $yd.^3$/day |
| Freeway Signing - 3# Post Type | 50 signs/day |

**Concrete Joint Repair** (High Production-Projects with > 1000 patches)

| | |
|---|---|
| Average(2 yd. (1.8m)) | 50 patches/day |
| Large(>2 yd. (1.8m)) | 598 $yd.^2$/day |

| | |
|---|---|
| **Bridge Painting** | 108 $yd.^2$/day |
| **Pin and Hanger Replacement** | 3 beams/day |
| Order Pin & Hanger | 60 days |

**Bridge Repair**

| | |
|---|---|
| Scarifying(Including Clean up) | 11960 $yd.^2$/day |
| Joint Removal(Including Clean up) | 4 yd./day |
| Forming & Placement | 3.8 yd./day |
| Hydro-Demolishing | 328 yd./day |
| Barrier Removal | 16 yd./day |
| Placement | 49 yd./day |
| Hand Chipping (Other than Deck) | 0.31 $yd.^{3/}$person/day |
| Shoulder Corrugations, Ground or Cut | 5 - 6 mi./side/day |
| Casting Latex Overlay | 273 yd./day |
| Curing Overlay | |
| Regular | 4 days |

| | |
|---|---|
| High Early | 1 day |
| Thrie Beam Retrofit | 33 yd./day |
| Beam End Repairs | |
| Welded Repairs | .75 days/repair |
| Bolted Repairs | .50 days/repair |
| Bolted Stiffeners (Pair) | .25 days/repair |
| Grind Beam Ends | .25 days/repair |
| Welded Stiffeners (Pair) | .25 days/repair |
| H-Pedestal Repairs: | |
| Welded Repair | .50 days/each |
| Replacement | 1 day/each |
| Deck Removal | 281 $yd.^2$/day |

**Surfacing-Bituminous**

| | |
|---|---|
| Metro-Primary(<(19800 tons (18000mtons)) | |
| Paving | 594 tons/day |
| Joints | 164 yd./day |
| Cold Milling | 4066 $yd.^2$/day |
| Aggregate Shoulders | 990 tons/day |
| Metro Primary(>(19800 tons (18000mtons)) | |
| Paving | 594 tons/day |
| Joints | 219 yd./day |
| Cold Milling | 8970 $yd.^2$/day |
| Metro Interstate(>(19800 tons (18000mtons)) | |
| Paving | 1210 tons/day |
| Joints | 394 yd./day |
| Aggregate Shoulders | 990 tons/day |
| Urban Primary(<(19800 tons (18000mtons)) | |
| Paving | 704 tons/day |
| Joints | 109 yd./day |
| Cold Milling | 2033 $yd.^2$/day |
| Rubblizing | 2033 $yd.^2$/day |
| Aggregate Shoulders | 495 tons/day |
| Urban Primary(>(19800 tons (18000mtons)) | |
| Paving | 1100 tons/day |
| Joints | 131 yd./day |
| Cold Milling | 2033 $yd.^2$/day |
| Aggregate Shoulders | 550 tons/day |
| Urban Interstate(>(19800 tons (18000mtons)) | |

| | |
|---|---|
| Paving | 1320 tons/day |
| Joints | 241 yd./day |
| Cold Milling | 2033 $yd.^2$/day |
| Rubblizing | 6937 $yd.^2$/day |
| Aggregate Shoulders | 704 tons/day |
| Rural Primary(<(19800 tons (18000mtons)) | |
| Paving | 704 tons/day |
| Joints | 131 yd./day |
| Cold Milling | 649 tons/day |
| Crush & Shape | 11960 $yd.^2$/day |
| Aggregate Shoulders | 704 tons/day |
| Rural Primary(>(19800 tons (18000mtons)) | |
| Paving | 1210 tons/day |
| Joints | 164 yd./day |
| Cold Milling | 880 tons/day |
| Crush & Shape | 11960 $yd.^2$/day |
| Rural Interstate(>(19800 tons (18000mtons)) | |
| Paving | 1411 tons/day |
| Joints | 240 yd./day |

**B. WORKSHEET**

**WORK DAY/COMPLETION DATE DETERMINATION**

CS: _____ JN:

DESCRIPTION OF WORK: _____

| MAJOR WORK ITEM | PRODUCTION QUANTITY | RATE | ESTIMATED TIME |
|---|---|---|---|
| | | | |
| | | | |
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TOTAL ESTIMATED TIME:

COMPLETION DATE: _____ (Calendar Days or Work Days)

COMMENTS:

_____
_____
_____
_____
_____

## C. MDOT CALENDARS

The following are the MDOT 4, 5 and 6 day calendars:

| CALENDAR | DESCRIPTION | START | FINISH |
|---|---|---|---|
| 1 | Std - Apr 16 - Nov 15 - 4 day | APR 16 | N0V 15 |
| 2 | LP - Bit Stab - 4 day | MAY 15 | OCT 15 |
| 3 | UP - Bit Stab - 4 day | JUN 01 | OCT 01 |
| 4 | LP S of M-46 - Bit Pave - 4 day | MAY 05 | NOV 15 |
| 5 | LP N of M-46 - Bit Pave - 4 day | MAY 15 | NOV 01 |
| 6 | UP - Bit Pave - 4 day | JUN 01 | OCT 15 |
| 7 | LP - Bit Seal Coat - 4 day | JUN 01 | SEP 15 |
| 8 | UP - Bit Seal Coat - 4 day | JUN 15 | SEP 01 |
| 9 | Tree Planting - Deciduous - 4 day | MAR 01<br>OCT 01 | MAY 15<br>NOV 15 |
| 10 | Tree Planting - Evergreen - 4 day | MAR 01 | JUN 01 |
| 11 | South LP - Restoration - 4 day | MAY 01 | OCT 10 |
| 12 | North LP - Restoration - 4 day | MAY 01 | OCT 01 |
| 13 | UP - Restoration - 4 day | MAY 01 | SEP 20 |
| 14 | Full Year - Winter Work - 4 day | JAN 01 | DEC 31 |
| 21 | Std - Apr 16 - Nov 15 - 5 day | APR 16 | NOV 15 |
| 22 | LP - Bit Stab - 5 day | MAY 15 | OCT 15 |
| 23 | UP - Bit Stab - 5 day | JUN 01 | OCT 01 |
| 24 | LP S of M-46 - Bit Pave - 5 day | MAY 05 | NOV 15 |
| 25 | LP N of M-46 - Bit Pave - 5 day | MAY 15 | NOV 01 |
| 26 | UP - Bit Pave - 5 day | JUN 01 | OCT 15 |
| 27 | LP - Bit Seal Coat - 5 day | JUN 01 | SEP 15 |
| 28 | UP - Bit Seal Coat - 5 day | JUN 15 | SEP 01 |
| 29 | Tree Planting - Deciduous - 5 day | MAR 01<br>OCT 01 | MAY 01<br>NOV 15 |
| 30 | Tree Planting - Evergreen - 5 day | MAR 01 | JUN 01 |
| 31 | South LP - Restoration - 5 day | MAY 01 | OCT 10 |

| | | | |
|---|---|---|---|
| 32 | North LP - Restoration - 5 day | MAY 01 | OCT 01 |
| 33 | UP - Restoration - 5 day | MAY 01 | SEP 20 |
| 34 | Full Year – Winter Work - 5 day | JAN 01 | DEC 31 |
| 35 | Full Year - Expedited - 6 day | JAN 01 | DEC 31 |

**ATTACHMENT H**
**CS 82073 - JN 87112C**
**M-85 from Miller Street to Springwells Street**
**City of Detroit**
**Wayne County**

## MONTHLY PROGRESS REPORTS

The first two pages of this attachment are the necessary layout of the Monthly progress reports and the last three pages are a completed example.

**Control Section** 00000
**Job Number** 00000C
**Structure Number** S00
**Date** 00/00/00

## MONTHLY PROGRESS REPORT

A. Work accomplished during the previous month.

B. Anticipated work items for the upcoming month.

C. Real or anticipated problems on the project.

D. Update of previously approved detailed project schedule (attached), including explanations for any delays or changes.

E. Items needed from MDOT.

F. Copy of Verbal Contact Records for the period (attached).

**Structure Number – Control Section – Job Number**
**Route, Location Description**
Design Schedule as of 00/00/00

**LIST TASKS, SUBMITTALS, APPROVALS AND MEETINGS AS OUTLINED IN SCOPE OF DESIGN SERVICES AS NEEDED. THIS LIST IS JUST AN EXAMPLE.**

| Original Authorized Start Date | Original Authorized Finish Date | (Anticipated) or **Actual** Start Dates | (Anticipated) or **Actual** Finish Dates | Task | Task Description |
|---|---|---|---|---|---|
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | ?? | Initial project meeting. |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3330 | Conduct Design Survey |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3360 | Prepare Base Plans |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | | Submit Base Plans |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3580 | Develop Preliminary Plans |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3390 | Develop Construction Zone Traffic Control Concepts |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3540 | Develop Construction Zone Traffic Control Plan |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3550 | Develop Preliminary Traffic Operations Plan |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3351 | Review & Submit of Preliminary Right-Of-Way Plans |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | | Submittal of The Plan Review Package |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | | Completion of The Plan Review Meeting |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3840 | Develop Final Plans and Specs |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | | Submittal of final plans/proposal package to MDOT for final review |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3870 | Omissions/Errors Check (OEC) Meeting |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | | Vendor's Plan Completion: Final Construction Plan/Proposal Package with recommendations Incorporated to MDOT (two weeks After OEC Meeting) |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | | Final Deliverables to MDOT |

**Control Section** 12345
**Job Number** 11111C
**Structure Number** S02
**Date** 07/31/95

## MONTHLY PROGRESS REPORT

A. Work accomplished during the previous month.

1. During the last month we completed the Final Right of Way plans and submitted them to Thomas Nelson, Jr. on 05/01/99.

B. Anticipated work items for the upcoming month.

1. Submit the Preliminary Plans and related material on 03/11/99.

2. Attend the meeting regarding the Ameritech lines on the bridge, scheduled for 03/12/99.

C. Real or anticipated problems on the project.

1. We foresee no problems at this time.

D. Update of previously approved detailed project schedule (attached), including explanations for any delays or changes.

1. The design is falling behind schedule because we had problems resolving the geometries of the ramps in relation to the bridge. The Preliminary Plan submittal will be the only task affected by this delay because we will make up the lost time prior to submitting the Final Plans and Specifications.

E. Items needed from MDOT.

1. Prior to final Plan submittal we will need the latest Special provision and Supplemental Specification checklist.

F. Copy of Verbal Contact Records for the period (attached).

1. Discussed bridge and ramp geometries with Tom Myers of M$DOT Traffic and Safety Division on 07-24-95.

**SN: S02 - CS: 12345 - JN: 11111C**
**M-111, from There Village Limits to north of That Road**
Design Schedule as of 07/31/95

| Original Authorized Start Date | Original Authorized Finish Date | (Anticipated) or **Actual** Start Dates | (Anticipated) or **Actual** Finish Dates | Task | Task Description |
|---|---|---|---|---|---|
| 01/12/95 | 01/12/95 | **01/12/95** | **01/12/95** | ?? | Initial project meeting. |
| 01/29/95 | 01/29/95 | **01/30/95** | **01/30/95** | 3330 | Conduct Design Survey. |
| 02/17/95 | 04/10/95 | **02/17/95** | **04/20/95** | 3360 | Prepare Base Plans. |
| 02/29/95 | 02/29/95 | **02/29/95** | **02/29/95** | 3390 | Develop the Construction Zone Traffic Control Concepts |
| 03/12/95 | 03/13/95 | **03/12/95** | (03/30/95) | 3540 | Develop Construction Zone Traffic Control Plan |
| 03/20/95 | 03/19/95 | **03/25/95** | (03/30/95) | 3551 | Develop/Review Preliminary Traffic Signal Plan |
| 07/01/95 | 07/01/95 | (07/01/95) | (07/01/95) | 3590 | The Plan Review Meeting |
| 07/11/95 | 08/11/95 | (07/11/95) | (08/11/95) | 3821 | Complete/Review Traffic Signal Plan |
| 09/15/95 | 09/15/95 | (09/15/95) | (09/15/95) | 3830 | Complete Construction Zone Traffic Control Plan. |
| 09/16/95 | 09/16/95 | (09/16/95) | (09/16/95) | 3840 | Develop Final Plans and Specifications |
| 09/25/95 | 09/23/95 | (09/25/95) | (09/25/95) | 3870 | Omissions/Errors Check (OEC) Meeting |

# VERBAL CONTACT RECORD

**Control Section** 12345
**Job Number** 11111C
**Structure Number** S02
**Date** 07/31/95

Joe Engineer talked to Tom Myers and decided to use a 0.05'/ft super on ramp A leading into the bridge.

**ATTACHMENT I**
**CS 82073 - JN 87112C**
**M-85 from Miller Street to Springwells Street**
**City of Detroit**
**Wayne County**

## MDOT DESIGN VENDOR MANUAL

The MDOT Design Vendor Manual is now listed on the MDOT Bulletin Board System and can be found under the D_CONSLT Library. An index of the latest version of the task descriptions along with any revisions will be included as part of this authorization.

VENDORS are still encouraged to review and provide comment on the draft pages from the MDOT Design Vendor Manual. Please send suggestions to:

Katherine Hulley
Administrative Products Supervising Engineer
Design Division
Michigan Department of Transportation
425 West Ottawa
P.O. Box 30050
Lansing, MI 48909

## P/PMS TASK - INDEX - VERSION 2 rev 2

ISSUED 9/29/2000

| P/PMS TASK | CURRENT DATE | LATEST REVISION DATE |
|---|---|---|
| 3120 - CONDUCT STRUCTURE DECK CONDITION SURVEY | 07/29/99 | |
| 3330 - CONDUCT DESIGN SURVEY | 07/29/99 | |
| 3340 - CONDUCT STRUCTURE SURVEY | 07/29/99 | |
| 3350 - CONDUCT HYDRAULICS SURVEY | 07/29/99 | |
| 3360 - PREPARE BASE PLANS | 06/22/99 | |
| 3361 - REVIEW AND SUBMIT PRELIMINARY RIGHT OF WAY (PROW) PLANS | 07/16/99 | |
| 3370 - PREPARE STRUCTURE STUDY | 06/16/99 | |
| 3380 - REVIEW BASE PLANS | 06/29/99 | |
| 3390 - DEVELOP THE CONSTRUCTION ZONE TRAFFIC CONTROL CONCEPTS | 07/16/99 | |
| 3510 - PERFORM ROADWAY GEOTECHNICAL INVESTIGATION | 07/29/99 | |
| 3520 - CONDUCT HYDROLOGIC, HYDRAULIC AND SCOUR ANALYSES | 08/29/00 | revised per P. Schriner |
| 3530 - CONDUCT FOUNDATION STRUCTURE INVESTIGATION | 07/16/99 | |
| 3540 - DEVELOP CONSTRUCTION ZONE TRAFFIC CONTROL PLAN | 07/16/99 | |
| 3551 - DEVELOP/REVIEW PRELIMINARY TRAFFIC SIGNALS PLAN | 07/16/99 | added to index 1/5/2000 |
| 3552 - DEVELOP PRELIMINARY PERMANENT PAVEMENT MARKING PLAN | 07/16/99 | |
| 3553 - DEVELOP PRELIMINARY NON - FREEWAY SIGNING PLAN | 07/16/99 | |
| 3554 - DEVELOP PRELIMINARY FREEWAY SIGNING PLAN | 07/16/99 | |
| 3570 - PREPARE PRELIMINARY STRUCTURE PLANS | 07/16/99 | |
| 3580 - DEVELOP PRELIMINARY PLANS | 06/30/99 | |
| 3581 - FINAL RIGHT-OF-WAY PLANS | 07/16/99 | |
| 3590 - REVIEW PRELIMINARY PLANS | 06/29/99 | |
| 3670 - DEVELOP MUNICIPAL UTILITY PLANS | 06/30/99 | |
| 3675 - DEVELOP ELECTRICAL PLANS | 07/01/99 | |

| P/PMS TASK | CURRENT DATE | LATEST REVISION DATE |
|---|---|---|
| 3710 - DEVELOP REQUIRED MITIGATION (FOR INFORMATION ONLY, THIS IS NOT A VENDOR TASK) | 07/16/99 | |
| 3720 - SUBMIT ENVIRONMENTAL PERMIT APPLICATIONS (FOR INFORMATION ONLY, THIS IS NOT A VENDOR TASK) | 07/16/99 | |
| 3821 - COMPLETE/REVIEW TRAFFIC SIGNAL PLANS | 07/16/99 | |
| 3822 - COMPLETE PERMANENT PAVEMENT MARKING PLAN | 07/16/99 | |
| 3823 - COMPLETE NON-FREEWAY SIGNING PLAN | 07/16/99 | |
| 3824 - COMPLETE FREEWAY SIGNING PLAN | 07/16/99 | |
| 3830 - COMPLETE CONSTRUCTION ZONE TRAFFIC CONTROL PLAN | 06/22/99 | |
| 3840 - DEVELOP FINAL PLANS AND SPECIFICATIONS | 07/02/99 | |
| 3850 - DEVELOP STRUCTURE FINAL PLANS AND SPECIFICATIONS | 07/29/99 | |
| 3870 - HOLD OMISSIONS/ERRORS CHECK (OEC) MEETING | 07/13/99 | |
| 4120 - OBTAIN PRELIMINARY TITLE COMMITMENTS | 06/29/99 | |
| 4130 - PREPARE MARKED FINAL R.O.W. PLANS | 06/29/99 | |
| 4140 - PREPARE PROPERTY LEGAL INSTRUMENTS | 06/29/99 | |
| 5010 - CONSTRUCTION PHASE ENGINEERING ASSISTANCE | 07/29/99 | |

**PROJECT LOCATION: M-85 from Springwells Street to Clark Street in the City of Detroit, Wayne County**
**CONTROL SECTION, JOB NUMBER: CS 82073 – JN 87146C**
**DESCRIPTION OF WORK: Roadway Rehabilitation**

## I Primary Prequalification Classification:

Roadway Rehabilitation & Rural Freeways

## II Secondary Prequalification Classification:

~~Short and Medium Span Bridges~~
~~Railroad Bridges~~
~~Specialty Walls and Slopes~~
Municipal Utilities
Pump Station Design
Landscape Architecture
Right-Of-Way Surveys
Road Design Surveys
Structure Surveys
Photogrammetric Control Surveys
Photogrammetry
Asbestos Investigations
Geotechnical Engineering Services
Maintaining Traffic Plans & Provisions
Pavement Marking Plans
Permanent Non-Freeway Traffic Signing Plans
Traffic Signal Design
Traffic Operations Studies
Utility Coordination
Subsurface Utility Engineering

The anticipated start date of the service is July 24, 2006.
The anticipated completion date for the service is January 3, 2011.

DBE Requirement: 10%

Send Proposals to:
Mark A. Sweeney – Project Manager
MDOT – Metro Region Office
18101 West Nine Mile Road
Southfield, Michigan 48075

**SCOPE OF DESIGN SERVICES**
**CS 82073 - JN 87146C**
**M-85 from Springwells Street to Clark Street**
**City of Detroit, Wayne County**

## I. SCOPE OF VENDOR DUTIES

Complete the design of this project including, but not limited to the following:

A. This project shall follow the findings contained within the Final Scoping Package for this project (the Final Scoping Package was compiled as part of the EPE portion of this project).

B. Participate with and incorporate findings from separate evaluation efforts (performed by others) concerning the Capacity, Public Involvement, Historical and Context Sensitive Design Issues and Parking.

C. Conduct Value Planning workshop.

D. Perform design surveys. **Please know that a design survey for this project has already been performed.** This task has been included should additional survey information be required.

E. Provide additional survey information (determine bridge footing elevations and locate underground storage tanks, coal chutes and basements within the project limits).

F. Provide additional S.U.E. information (Subsurface Utility Engineering). (See Attachment B). **Please know that a S.U.E. Contract was included as part of the EPE portion of this project.** This task has been included should additional S.U.E. information be required.

G. Prepare a drainage study and related design.

H. Prepare required plans, typical cross-sections, details, and specifications required for design and construction.

I. Compute and verify all plan quantities.

J. Prepare staging plans and special provisions for maintaining traffic during construction.

K. Prepare pavement marking plans and special provisions.

L. Prepare traffic signal plans and special provisions.

M. Prepare permanent signing plans and special provisions for non-freeway sign upgrading.

N. Prepare Municipal Utility plans and special provisions (to include public water, lighting (PLD) and sanitary services).

O. Prepare pump station plans and special provisions.

P. Prepare landscaping / enhancement plans and special provisions.

Q. Provide base sheets to the MDOT MITS Center. Receive MDOT's mark-up drawings, pay items and special provisions, and prepare necessary MITS plans as appropriate. The Vendor will be responsible for all CADD and SAPW work.

R. Prepare Right-Of-Way and Marked Final Right of Way plans, as required, to locate, verify and purchase real estate and/or obtain construction access permits for this project.

S. Perform a Crash Analysis and Safety Review for this project. (See Attachment E).

T. Prepare the accident analysis report for this project. A separate report may be required for the roadway and for each of the design elements included within the design exception requests.

U. Prepare a capacity analysis, as well as provide user costs.

V. As part of this project, the design of additional bridges may be added at a later date, which will be designed by the Vendor. These additional structures may be associated with different job numbers (still to be determined), but will be included within this selection. In the event that the bridges are added, the Vendor will be notified accordingly with Scopes of Work provided at that time.

W. Perform Utility Coordination for the project (See Attachment D).

X. Coordinate this project with the affected communities and business groups.

Y. Coordinate with the M-85 bascule bridge over the Rouge River project currently being studied for replacement and realignment. Construction of the bridge and associated approach work from Bayside Avenue to Miller Road may run concurrently with this reconstruction project.

Z. Coordinate with the additional reconstruction projects along M-85 from Schaefer Highway to Oakwood Boulevard and Miller Road to Springwells Street. Construction of these sections of M-85 may run concurrently or consecutively.

AA. The Vendor may be asked to break this project into, multiple independent construction packages. Each package will be let under separate job numbers (to be determined at a later date), possibly with separate lettings. The Vendor will be responsible for preparing all of the necessary plans, special provisions and details that each of the construction packages will require.

BB. Provide solutions to any unique problems that may arise during the design of the project.

CC. The Vendor may be required to provide Design Services during the construction phase of this project. If Construction Assistance is required, then a separate authorization for those services will be issued.

## II. PROJECT LOCATION

The project is located along M-85, between Springwells Street to Clark Street, in the City of Detroit, Wayne County. The project length is approximately 1.94 miles.

## III. PROJECT DESCRIPTION

This project consists of all work related to designing this reconstruction project, including but not limited to the following:

A. Perform grading and earthwork.
B. Reconstruct the road as per the MDOT Pavement Design.
C. Perform shoulder upgrades, as is required.
D. Install / replace curb and gutter.
E. Upgrade geometrics to current standards
F. Perform crown and superelevation modifications.
G. Upgrade existing underclearances.
~~H. Potentially perform design for additional bridges, to be determined at Scope Verification.~~
I. Adjust and upgrade the existing drainage system.
J. Separate the proposed storm sewer system from the existing combined sewer system.
K. Adjust and replace existing signs.
L. Adjust and upgrade signals.
M. Perform guardrail upgrades or design, as is required.
N. Clean existing drainage structures and drainage structure leads, as is required
O. Install, if not already present, sidewalk ramp terminals at all sidewalk street intersection locations.

Work shall conform to current MDOT, FHWA, and AASHTO practices, guidelines, policies, and standards (i.e., Road Design Manual, Standard Plans, Roadside Design Guide, A Policy on Geometric Design of Highways and Streets, Michigan Manual of Uniform Traffic Control Devices, etc.).

## IV. PROJECT CONSTRUCTION COST

A. The estimated cost of construction is:

| | | |
|---|---|---|
| Roadway Rehabilitation (JN 87146C) | Programmed Cost: | $20,487,550 |
| | **CONSTRUCTION TOTAL** | **$20,487,550** |

The above construction total is the amount of funding programmed for this project. The Vendor is expected to design the project within the programmed amount.

**If at any time the estimated cost of construction varies by more than 5% of the current programmed amount, then the Vendor will be required to submit a letter justifying the changes in the construction cost estimate.**

## V. PROJECT SCHEDULE

The scheduled Vendor's plan completion date for this project is February 1, 2010. The Vendor shall use the following events to prepare the proposed implementation schedule as required in the Guidelines for the Preparation of Responses on Assigned Design Services Contracts. These dates shall be used in preparing the Vendor's Monthly Progress Reports.

| Target Date | Task # | Description |
|---|---|---|
| | 3330 | Conduct Design Survey |
| | ~~3340~~ | ~~Conduct Structure Survey~~ |
| | | Submit Survey Final Deliverables |
| | 3360 | Prepare Base Plans |
| | | Submit Base Plans |
| | 3361 | Submittal of Preliminary Right-Of-Way Plans |
| | ~~3370~~ | ~~Prepare Structure Study~~ |
| | 3380 | Review Base Plans (by MDOT) |
| | 3390 | Develop the Construction Zone Traffic Control Concepts |
| | 3510 | Perform Roadway Geotechnical Investigation (to determine bridge footing elevations and locate underground storage tanks, coal chutes and basements within the project limits) |
| | 3522 | Conduct Drainage Study, Storm Sewer Design, and Structural Best Management Practices (BMP) |
| | ~~3530~~ | ~~Conduct Structure Foundation Investigation~~ |
| | ~~3535~~ | ~~Conduct Structure Review for Architectural and Aesthetic Improvement~~ |
| | | Submit Plans for Utility Review (approximately 50% complete) |
| | | Submit Environmental Permit Information (6 months prior to the Plan Completion Date) |
| | 3540 | Develop Construction Zone Traffic Control Plan |

| | | |
|---|---|---|
| | 3551 | Perform/Review Traffic Signal Operations Plan |
| | 3552 | Develop Preliminary Permanent Pavement Marking Plan |
| | 3553 | Develop Preliminary Non-Freeway Signing Plan |
| | ~~3570~~ | ~~Prepare Preliminary Structure Plans~~ |
| | 3580 | Develop Preliminary Plans<br>Submit Preliminary Plans |
| | 3581 | Final Right-Of-Way Plans |
| | 4120 | Obtain Preliminary Title Commitments |
| | 4130 | Prepare Marked Final R.O.W. Plans |
| | 4140 | Prepare Property Legal Instruments |
| | 3590 | Review Preliminary Plans (The Plan Review) (by MDOT) |
| | 3650 | Railroad Coordination |
| | 3670 | Develop Municipal Utility Plans (impacted by road work) |
| | 3672 | Development Special Drainage Structures Plans |
| | 3675 | Develop Electrical Plans (impacted by road work) |
| | 3680 | Obtain Required Municipal Utility Permits (impacted by road work) |
| | 3821 | Complete/Review Traffic Signal Plans |
| | 3822 | Complete Permanent Pavement Marking Plan |
| | 3823 | Complete Non-Freeway Signing Plan |
| | 3830 | Complete the Construction Zone Traffic Control Plan |
| | 3840 | Develop Final Plans and Specifications |
| | ~~3850~~ | ~~Develop Structure Final Plans and Specifications~~ |
| 11/30/09 | | Submit Final Plan/Proposal Package to MDOT for final review |
| | 3870 | Hold Omissions/Errors Check (OEC) Meeting |
| 01/04/10 | | Omissions/Errors Check (OEC) Meeting (approximate date) |
| 02/01/10 | | Vendor's Plan Completion: Final Construction Plan/Proposal package with recommendations incorporated to MDOT (two weeks after OEC Meeting) |
| 01/3/11 | | Final Deliverables to MDOT |

## VI. PAYMENT SCHEDULE

Compensation for this Scope of Design Services shall be on an actual cost plus fixed fee basis.

## VII. MONTHLY PROGRESS REPORT

On the first of each month, the Vendor Project Manager shall submit a monthly project progress report to **Mark Sweeney**, Project Manager, **Ishrat Jahan**, the Road Vendor Coordinator. The monthly progress report shall follow the guidelines in Attachment H.

## VIII. FORMAT

The Vendor shall deliver all computer files associated with the project in their native format (spreadsheets, CADD files, GEOPAK files, etc. ) on DVD, CD and/or uploaded to ProjectWise, as directed by the MDOT Project Manager. All CADD/GEOPAK files shall be created and

identified with standard MDOT file names as shown in Appendix A of the Road Design Manual. It is the Vendor's responsibility to obtain up to date Microstation (V8) and GEOPAK seed/configuration files necessary to comply with MDOT's CADD standards which are posted to the bulletin system. When the use of GEOPAK road design software is necessary to develop plans all pay items shall be placed into the CADD file using GEOPAK's Design and Computation Manager so that Quantity Manager can be used to transfer pay item information to SAPW/Trns*port. Any CADD/GEOPAK files that do not conform to MDOT standards will be returned to the Vendor for correction at the Vendor's expense.

Proposal documents shall be submitted both in their native format with standard naming conventions and as individual Adobe PDF files. To provide text search capabilities, the PDF files shall be created by converting the native electronic files to PDF. Scanning to PDF is discourages except in instances when it is necessary to capture a legally signed document or when a hard copy version of the document is all that exists.

Plan files shall be submitted both in their native .dgn format with standard naming conventions and plotted into a combined Adobe PDF file. Plan sheets shall be plotted to Adobe PDF with full text search and level on/off capabilities in both scalable full size (24" x 36") and scalable half size (11" x 17") formats including plan sheets and profile sheets will be required. The project will require a ratio (scale) of 1:40; scale and layout of sheets to be discussed with the Road Vendor Coordinator.

A half size title sheet shall be plotted, stamped, and signed, then scanned for inclusion with the Adobe PDF set. The original title sheet shall be sent to the MDOT Project Manager.

Stand Alone Proposal Estimator's Worksheet (SAPW) shall be used to generate the .txt and .csv files necessary for import into the Trns*port bid letting software. The SAPW files shall be transmitted electronically by the method specified by the MDOT Project Manager.

Other plan sheets that are required for this project shall be completed by the Vendor. These include, but are not limited to the following plan sheets:

A. The title sheet. MDOT will provide a map of the area on a disk in our workstation format. If the map is not available, MDOT will provide a map that could be used. The Vendor shall be responsible for any revisions to the title sheet and the title sheet and map shall meet MDOT format and layout guidelines.

B. Note Sheet.

C. Typical Cross-Sections.

D. Project-specific Special Details.

E. Construction staging and traffic control plans.

F. Detail grade sheets for major intersections, ramp gores and critical areas.

G. Paving details.

H. Pavement marking plan(s).

I. Culvert detail sheet(s).

J. Vicinity and drainage map sheet.

K. Alignment sheet.

L. Witness and benchmark sheet(s).

M. Soil boring log sheet(s).

All plans, special provisions, estimates, and other project related items shall meet all MDOT requirements and detailing practices (i.e., format, materials, symbols, patterns, and layout) or as otherwise directed by the Project Manager.

All plans, specifications, and other project related items are subject to review and approval by MDOT.

## IX. UTILITIES

The Vendor shall be responsible for obtaining and showing on the plans the location and names of all existing utilities within the limits of the project. In the course of resolving utility conflicts, the Vendor shall make modifications to the plans or design details and provide assistance as directed by the MDOT Utility Permits Engineer and/or Project Manager. The Vendor shall attend any utility meetings called to ensure that the concerns are addressed on the plans involving utilities. The Vendor shall assist in the review of utility permit requests to ensure compatibility with the project. In addition, the Vendor is responsible for the tasks detailed in Attachment D.

## X. TRAFFIC CONTROL AND MDOT PERMITS

The Vendor shall be responsible for all traffic control required to perform the tasks as outlined in this Project Scope of Design Services.

The Vendor shall be responsible for obtaining up-to-date access permits and pertinent information for tasks in MDOT Right-Of-Way (ROW). This information can be obtained through Pam Sebenick, Utilities/Permits Section, Real Estate Division at (517) 373-7680.

## XI. PRE-QUALIFICATION AND SUBCONTRACTING OF CONTRACT WORK

Any task(s) for which the Vendor is not prequalified must be completed by a Subcontractor that is pre-qualified for that task(s). Any questions regarding prequalification should be directed to Phil Brooks, Prequalification Manager, at (517) 335-2514.

The Department's prequalification is not a guarantee or warranty of the subcontractors' ability to perform or complete the work subcontracted. The Vendor remains fully responsible to the Department for completion of the work according to the contract as if no portion of it had been subcontracted.

All subcontractor communications with the Department shall be through the Vendor to the MDOT Project Manager. This requirement may be waived if a written communication plan is approved by the MDOT Project Manager.

The Department may direct the immediate removal of any subcontractor working in violation of this subsection. Any costs or damages incurred are assumed by the Vendor by acceptance of the contract. It is further understood that the Vendor's responsibilities in the performance of the contract, in case of an approved subcontract, are the same as if the Vendor had handled the work with the Vendor's own organization.

## XII. VENDOR RESPONSIBILITIES (GENERAL)

1. Meet with the MDOT Project Manager to review project, location of data sources and contact persons, and review relevant MDOT operations. The Vendor shall review and clarify project issues, data needs and availability, and the sequence of events and team meetings that are essential to complete the design by the project plan completion date. Attention shall be given to critical target dates that may require a large lead time, such as geotechnical requirements, ROW submittal dates, Railroad coordination requirements, utility conflict resolution, local agency meetings, etc.

2. Maintain a Design Project Record which includes a history of significant events (changes, comments, etc.) which influenced the development of the plans, dates of submittals and receipt of information.

3. **P/PMS TASK 3330 - CONDUCT DESIGN SURVEY**
   Perform surveys as necessary to design this project (See Attachment A). The Vendor's survey shall be as complete and accurate as necessary to:
   1. Calculate and verify plan quantities to the Vendor's standards.
   2. Locate and lay out the future construction of this project.
   3. Perpetuate affected property controlling corners for monument preservation.

   As part of the design proposal, the Vendor shall present a detailed survey work plan for review, evaluation and acceptance by the MDOT Project Manager. A final survey report for review and approval by the MDOT Survey Unit **is** required. Acceptance of the survey by MDOT Design Survey does not in any way relieve the Vendor of responsibility and liability for the content of the survey.

4. There shall be a preliminary survey review to this project. This review shall be for horizontal and vertical control. The Vendor shall provide copies of all field work notes as well as least square adjustment analysis to the MDOT Project Manager as soon as it is available.

~~5. The Vendor will be responsible for providing elevation view sketches at both sides of each and every bridge in the project area. The sketch must show the elevation of the roadway at 2 feet inside of the inside edge of metal and 2 feet outside of the outside edge of metal, as well as the interior lane lines, crown point, and shoulder edges. The corresponding elevation of the structure underclearance immediately overhead must also be shown. Both directions of M-85 will be handled separately and similarly, as will the cross roads. All underclearance sketches must be shown looking up station.~~

~~6. **P/PMS TASK 3340 - CONDUCT STRUCTURE SURVEY**~~
~~See Attachment C as well as Vendor Manual Attachment I for details.~~

7. **P/PMS TASK 3360 - PREPARE BASE PLANS**
See Vendor Manual Attachment I for details.
Note: A meeting may be scheduled by the MDOT Project Manager after MDOT's review to discuss comments.

8. **P/PMS TASK 3361 - SUBMITTAL OF PRELIMINARY RIGHT-OF-WAY PLANS**
See Vendor Manual Attachment I for details.

~~9. **P/PMS TASK 3370 - PREPARE STRUCTURE STUDY**~~
~~See Attachment C as well as Vendor Manual Attachment I for details.~~

10. **P/PMS TASK 3380 – REVIEW BASE PLANS (BY MDOT)**
See Vendor Manual Attachment I for details.

11. **P/PMS TASK 3390 - DEVELOP THE CONSTRUCTION ZONE TRAFFIC CONTROL CONCEPTS**
See Vendor Manual Attachment I for details.

12. **P/PMS TASK 3510 – PERFORM ROADWAY GEOTECHNICAL INSPECTION (to determine bridge footing elevations and locate underground storage tanks, coal chutes and basements within the project limits)**
See Vendor Manual Attachment I for details.

13. ~~Develop the bridge items required for this project according to the enclosed Attachment C.~~

14. Perform storm sewer design calculations, including appropriate outlets and energy dissipation if necessary, as outlined in the MDOT Drainage Manual. Detention may be required. Detention pond design must meet, but is not limited to, local agency storm

water regulations and Michigan Department of Environmental Quality water quality permit requirements. Submit all design calculations, drainage maps, and proposed profiles to the MDOT Project Manager for review prior to the Plan Review.

15. The Vendor shall identify the locations of any water main and/or sanitary sewer on the project.

16. If water mains and/or sanitary sewers are present within the project limits, the Vendor shall evaluate the necessity for the relocation of water mains and sanitary sewers, in accordance with Design Division's Informational Memorandum #441B and #402R dated April 13, 1992. The Vendor shall submit a report to Steven J. Urda, Design Engineer - Municipal Utilities, Design Division for review and concurrence. A copy of the report shall be sent to the Project Manager. **If relocation is necessary and water main and/or sanitary sewer work is not part of the Scope of Work, contact the MDOT Project Manager immediately.**

17. **P/PMS TASK 3522 – CONDUCT DRAINAGE STUDY, STORM SEWER DESIGN, AND STRUCTURAL BEST MANAGEMENT PRACTICES (BMP)**
See Vendor Manual Attachment I for details.

~~18. **P/PMS TASK 3530 - CONDUCT STRUCTURE FOUNDATION INVESTIGATION**~~
~~See Attachment C as well as Vendor Manual Attachment I for details.~~

~~19. **P/PMS TASK 3535 – CONDUCT STRUCTURE REVIEW FOR ARCHITECHTURAL AND AESTHETIC IMPROVEMENT**~~
~~See Attachment C as well as Vendor Manual Attachment I for details.~~

20. **P/PMS TASK 3540 - DEVELOP CONSTRUCTION ZONE TRAFFIC CONTROL PLAN**
See Vendor Manual Attachment I for details.

21. **P/PMS TASK 3551 - PERFORM/REVIEW PRELIMINARY TRAFFIC SIGNAL OPERATIONS PLAN**
See Vendor Manual Attachment I for details.

22. **P/PMS TASK 3552 - DEVELOP PRELIMINARY PERMANENT PAVEMENT MARKING PLAN**
See Vendor Manual Attachment I for details.

23. **P/PMS TASK 3553 - DEVELOP PRELIMINARY NON - FREEWAY SIGNING PLAN**
See Vendor Manual Attachment I for details.

~~24. **P/PMS TASK 3570 - PREPARE PRELIMINARY STRUCTURE PLANS**~~
~~See Attachment C as well as Vendor Manual Attachment I for details.~~

25. **P/PMS TASK 3580 - DEVELOP PRELIMINARY PLANS**
See Vendor Manual Attachment I for details.

26. **P/PMS TASK 3581 - FINAL RIGHT-OF-WAY PLANS**
See Vendor Manual Attachment I for details.

27. **P/PMS TASK 4120 - Obtain Preliminary Title Commitments**
See Vendor Manual Attachment I for details.

28. **P/PMS TASK 4130 - Prepare Marked Final R.O.W. Plans**
See Vendor Manual Attachment I for details.

29. **P/PMS TASK 4140 - Prepare Property Legal Instruments**
See Vendor Manual Attachment I for details.

30. **P/PMS TASK 3590 - REVIEW PRELIMINARY PLANS (THE PLAN REVIEW) (BY MDOT)**
See Vendor Manual Attachment I for details.

31. **P/PMS TASK 3650 – RAILROAD COORDINATION**
See Vendor Manual Attachment I for details.

32. **P/PMS TASK 3670 - DEVELOP MUNICIPAL UTILITY PLANS (impacted by road work)**
See Vendor Manual Attachment I for details.

33. **P/PMS TASK 3672 – DEVELOPMENT OF SPECIAL DRAINAGE STRUCTURES PLANS**
See Vendor Manual Attachment I for details.

34. **P/PMS TASK 3675 - DEVELOP ELECTRICAL PLANS (impacted by road work)**
See Vendor Manual Attachment I for details.

35. **P/PMS TASK 3680 – OBTAIN REQUIRED MUNICIPAL UTILITY PERMITS (impacted by road work)**
See Vendor Manual Attachment I for details.

36. **P/PMS TASK 3821 - COMPLETE/REVIEW TRAFFIC SIGNAL PLANS**
See Vendor Manual Attachment I for details.

37. **P/PMS TASK 3822 - COMPLETE PERMANENT PAVEMENT MARKING PLAN**
See Vendor Manual Attachment I for details.

38. **P/PMS TASK 3823 - COMPLETE NON-FREEWAY SIGNING PLAN**
See Vendor Manual Attachment I for details.

39. **P/PMS TASK 3830 - COMPLETE THE CONSTRUCTION ZONE TRAFFIC CONTROL PLAN**
See Vendor Manual Attachment I for details.

40. **P/PMS TASK 3840 - DEVELOP FINAL PLANS AND SPECIFICATIONS**
See Vendor Manual Attachment I for details.

~~41. **P/PMS TASK 3850 - DEVELOP STRUCTURE FINAL PLANS AND SPECIFICATIONS**~~
~~See Attachment C as well as Vendor Manual Attachment I for details.~~

42. **P/PMS TASK 3870 - HOLD OMISSIONS/ERRORS CHECK (OEC) MEETING**
See Vendor Manual Attachment I for details.
The interval for plotting cross-sections and developing the grade book shall be 50 feet. The intervals for critical areas shall be 25 feet.

43. **P/PMS TASK 5010 - CONSTRUCTION PHASE ENGINEERING AND ASSISTANCE**
The Vendor may be required to provide Design Services during the construction phase of this project. If Construction Assistance is required, then a separate authorization for those services will be issued.

44. If excavation is required, submit the excavation locations which may contain contamination. The Project Manager can then proceed in requesting a Preliminary Project Assessment (PPA).

45. The Vendor shall be required to prepare and submit a CPM network for the construction of this project. See Attachment G for details.

46. **CRASH ANALYSIS:** Perform a crash analysis and determine the recommended countermeasures, (See Attachment E for details) This shall include, but shall not be limited to, performing the crash analysis, which shall include the last 3 years of reliable data for the analysis period. If there has been a fatality within those 3 years, then the analysis shall incorporate the last 7 years of reliable data. The Vendor will be furnished 3 years of data. If 7 years of data is required, the Vendor shall request, in writing, the additional crash data from the MDOT Project Manager (requests may take up to two weeks from the date the request is received to fill).

47. Determine countermeasures based on the crash analysis and <u>provide a detail drawing explaining each recommendation</u>. Determine the construction cost estimate for each countermeasure using MDOT Pay Items. Summarize the countermeasures for each crash pattern individually.

48. Review and document the roadside safety related items (i.e. guardrail, barriers, attenuators, etc.) which need to be modified or included in the project. Documentation to include location, existing type and condition, and the recommended treatment.

49. **DRAINAGE STUDY**. Perform drainage study. See Attachment F for details.

50. The Vendor representative shall record and submit type-written minutes for all project related meetings to the MDOT Project Manager within two weeks of the meeting. The Vendor shall also distribute the minutes to all meeting attendees. MDOT will provide and distribute official meeting minutes for the Base Plan Review Meeting (if meeting necessary) and The Plan Review Meeting.

51. Attend information meetings (i.e., public hearings, open houses, etc.) with the public and public officials to assist in responding to concerns and questions. May require the preparation of displays such as maps, marked-up plans, etc.

52. Prepare and submit any information, calculations, hydraulic studies, or drawings required by MDOT for acquiring any permit (i.e. NPDES, DEQ, etc), approvals (i.e. county drain commission) and related mitigation. MDOT will submit permit requests.

53. Attend any project-related meetings as directed by the MDOT Project Manager.

54. The Vendor shall assist in the review of driveway and utility permit requests, incorporate the information in the design plans, and respond within 2 weeks from receipt of the permit.

55. The MDOT Project Manager shall be the official MDOT contact person for the Vendor **and shall be made aware of all communications regarding this project**. The Vendor must either address or send a copy of all correspondence to the MDOT Project Manager. This includes all Subcontractor correspondence and verbal contact records.

56. The Vendor shall contact the MDOT Project Manager whenever discoveries or design alternatives have the potential to require changes in the scope, limits, quantities, costs, or Right-Of-Way of the project.

57. Submit all design files electronically at all submittals.

## XII. MDOT RESPONSIBILITIES (GENERAL)

A. Schedule and/or conduct the following:
   1. Project related meetings
   2. The Plan Review
   3. ~~Utility Meetings~~ (see Attachment D)
   4. Quantity summary sheets and final item cost estimates
   5. Packaging of plans and proposal

B. Furnish Special Details and pertinent reference materials.

C. Furnish prints of an example of a similar project and old plans in the area, if available.

D. Supply information on existing pavement structure as necessary.

E. ~~Coordinate any necessary utility relocation(s).~~ (see Attachment D)

F. Furnish pavement core information (Vendor shall place information on plan sheets).

G. Furnish soil boring information as necessary (Vendor shall place information on plan sheets).

H. Pavement design.

I. Furnish diskette of file and instructions for the MDOT Stand Alone Estimator's Worksheet (SAEW).

## XII. VENDOR PAYMENT

All invoices/bills for services must be directed to the Department and follow the 'then current' guidelines. The latest copy of the "Professional Engineering Service Reimbursement Guidelines for Bureau of Highways" is available on MDOT's Bulletin Board System. This document contains instructions and forms that must be followed and used for invoicing/billing; payment may be delayed or decreased if the instructions are not followed.

Payment to the Vendor for Services rendered shall not exceed the "Cost Plus Fixed Fee Not to Exceed Maximum Amount" unless an increase is approved in accordance with the contract with the Vendor. All invoices/bills must be submitted within 14 calendar days of the last date of services being performed for that invoice.

Direct expenses will not be paid in excess of that allowed by the Department for its own employees. Supporting documentation must be submitted, with the invoice/bill, for all billable expenses on the Project. The only hours that will be considered allowable charges for this contract are those that are directly attributable to the CE activities of this Project. Hours spent in administrative, clerical, or accounting roles for billing and support, are not considered allowable hours; there will be no reimbursement for these hours.

Reimbursement for overtime hours will be limited to time spent on this project in excess of forty hours per week. Any variations to this rule should be included in the price proposal

**ATTACHMENT A**
**CS 82073 - JN 87146C**
**M-85 from Springwells Street to Clark Street**
**City of Detroit**
**Wayne County**

## SURVEY SCOPE OF WORK

Survey Limits: As needed for Design, Right-Of-Way, and Construction

**NOTES**: The Vendor shall discuss the scope of this survey with an MDOT Region Surveyor or Lansing Design Support Area Surveyor before submitting a proposal.

The Vendor surveyor must contact the Region or TSC Traffic and Safety Engineer for work restrictions in the project area prior to submitting a proposal.

A **detailed Survey Work Plan** with a **spreadsheet estimate** of hours by specific survey task such as traversing, leveling, mapping, etc., **must** be included in the project proposal.

It is the responsibility of the Professional Surveyor to safeguard all corners of the United States Public Land Survey System, published Geodetic Control and any other Property Controlling corners that may be in danger of being destroyed by the proposed construction project.

**GENERAL REQUIREMENTS:**

1. Surveys must comply with **all Michigan law** relative to land surveying.

2. Surveys must be done under the **direct supervision** of a Professional Surveyor licensed to practice in the State of Michigan.

3. Work in any of the following categories of survey: Road Design, Bridge, Hydraulic, Right-of-Way, and/or Ground Control (Photogrammetric) must be completed by a survey firm which is pre-qualified by MDOT.

4. Surveys must meet all requirements of the Michigan Department of Transportation (MDOT) Design Surveys *Standards of Practice* dated April 1, 1998. Please contact the Design Survey office to clarify any specific questions regarding these standards.

5. Vendors must obtain all necessary permits required to perform this survey on any public and/or private property, including an up-to-date permit from the MDOT Utilities Coordination and Permits Section.

6. The Vendor must contact any and all Railroads prior to commencing field survey on railroad property. The cost for any permit, flaggers and/or training that is required by the Railroad

will be considered as a direct cost, but only if included in the Vendor's proposal.

7. The Vendor must adhere to all applicable OSHA and MIOSHA safety standards, including the appropriate traffic signs for the activities and conditions for this job.

8. Vendors are responsible for a comprehensive and conscientious research of all records, including MDOT records, essential for the completion of this project.

9. Measurements, stationing, recorded data, and computations must be in international feet, unless specified otherwise by the Project Manager.

10. It is appropriate to utilize the same horizontal and vertical datums used in recent and/or future projects in the "corridor." Otherwise, coordinate values shall be based upon the Michigan State Plane coordinate system NAD83 if available within four miles. If not, a local project coordinate control system is acceptable. All elevations must be based upon the North American Vertical Datum of 1988 (NAVD88) if control is available within four miles. If not, existing MDOT plan datum is acceptable. **Other datums must be approved by the MDOT Design Division, Supervising Land Surveyor.** A preliminary submittal of the adjusted Horizontal and Vertical control for the project may be submitted to the MDOT Survey Vendor Coordinator or Region Surveyor for review and acceptance as soon as it is available.

11. The survey notes must be submitted to the Design Survey Unit in 10" by 12" divided portfolios with flap covers. As many portfolios should be used as are needed to contain all of the required documents and Compact Discs (CD's). **Duplicate CD's must be included in the portfolio, with one set labeled "Region Surveyor".**

12. Each portfolio must be labeled on the outside as in the following example:

    Survey Notes for:
    Route, Location and Project Limits [I-94 under Beaubien Street]
    Control Section [S06 of 82024]  Job Number [45197D]  Date [of submittal]
    By [Name of Firm]
    Michigan Professional Surveyor [ ]
    License # [ ]

13. Each submittal is to be divided into five sections. These sections are to be labeled as follows: **Administrative, Alignment, Control**, **Property**, **Mapping**, and **Miscellaneous**.

    a. The Administrative section will include the following items: a completed copy of the MDOT Form 222(3/99) entitled "SURVEY NOTES: RECEIPT AND TRANSMITTAL"; the limits of the survey and original survey scope as determined by the Vendor Surveyor and Design Engineer; a complete synopsis of the survey **that shall include, but not be limited to** horizontal and vertical control datums used; methodology; a complete discussion of government corners recovered, perpetuated or otherwise used as part of the survey; problems encountered; and a statement from the Vendor surveyor supervising the

project certifying compliance with Michigan Department of Transportation (MDOT) Design Surveys *Standards of Practice* dated April 1, 1998; as well as documentation of all project specific meetings and /or conversations with MDOT Survey personnel.

b. The Alignment section will contain a sketch and/or drawing of the alignment, witnesses and stationing of alignment points set or found; an explanation of how the alignment was determined, whether best fit or legal; and all supporting documentation. The alignment data must be submitted both hardcopy and electronically.

c. The Control section must contain the data collected and copies of all research documents used to establish the **horizontal and vertical** reference systems for the project, and must include a thorough written explanation describing how the systems were established. This section should also contain a complete list of control coordinates, control traverse raw data, least squares analysis for both traverse and benchmarks, a separate listing of control point coordinates and witnesses for mapping and construction staking of the project. A complete Benchmark list with datum, station and offset, elevation, and description of each benchmark shall also be included. This information must be submitted in hardcopy and ASCII electronic file format on Compact Discs (CD's). Also, a sketch of the control traverse, showing any ties (government corners, property, alignment, etc.) shall be included in this section.

d. The Property section contains all information that is utilized regarding the real property affected by the project. It also includes any and all property ties necessary to establish the Right of Way and/or acquire property if required by the project. This may include copies of all **recorded** Land Corner Recordation Certificates for the government corners used or reestablished, recorded plats, recorded certified surveys, tax maps, tax descriptions, and adjacent/riparian owners, as well as surveyed coordinates.

e. The Mapping section must consist of electronic data only. The final planimetric mapping file must be submitted in .PDF format. Raw survey data is not required.

f. The Miscellaneous section contains any information not included in the previous sections. The project surveyor's report should specify any items included in this section.

14. Each category of survey must be packaged separately (i.e., Bridge surveys separate from Road surveys and Hydraulic surveys). All sheets in a portfolio must be marked with the control section and job number. CD's must be labeled with the control section, job number, data type and file names.

15. The Vendor representative shall record and submit typewritten minutes for all project related meetings to the MDOT Project Manager within two weeks of the meeting. The Vendor shall also distribute the minutes to all meeting attendees.

16. The MDOT Project Manager is the official contact for the Vendor. The Vendor must send a copy of all project correspondence to the MDOT Project Manager. The MDOT Project Manager shall be made aware of all communications regarding this project. Any survey

related questions, in regard to this project, should be directed to a Survey Vendor Coordinator or MDOT Region Surveyor.

At the completion of this survey for this project, all field survey notes, all electronic data, and all research records obtained for this project will be considered the property of MDOT and **must be sent to** the MDOT, Design Division, Supervising Land Surveyor, P.O. Box 30050, Lansing, MI 48909. Please use MDOT's Form 222(3/99) entitled "SURVEY NOTES: RECEIPT AND TRANSMITTAL" for all transmittals. A copy of this transmittal form must also be sent to the MDOT Project Manager for Design.

## WORK RESTRICTIONS

The Vendor must call the MDOT Region or TSC Traffic and Safety Engineer before beginning work to inform him of surveying activity in the area. The Vendor is advised to discuss Traffic Control scenarios with the Traffic and Safety Engineer prior to submitting a proposal.

Traffic shall be maintained by the Vendor throughout the project in accordance with Sections 812 and 922 of the Standard Specifications for Construction, 2003 edition, and any supplemental specifications. All traffic control devices shall conform to the current edition, as revised, of the Michigan Manual of Uniform Traffic Control Devices (MMUTCD).

The Vendor must use MDOT standard lane closure "maintaining traffic" typical for any and all lane closures and shoulder closures. Typical MDOT traffic control diagrams are available on line at http://www.mdot.state.mi.us/tands/plans.cfm.

## FIELD SURVEY

The purpose of the field survey is to obtain all information and data required by the project design engineer, to leave control in the field for future construction staking, and to provide a sufficient history of the area to enable the MDOT Design Survey Unit to perform dependable surveys in the future. The Vendor surveyor must discuss the scope of this survey with the project design engineer before initiating any work on this project. Notes of this meeting and a detailed Survey Work Plan with an estimate of hours broken down by specific survey task must be submitted to the MDOT Project Manager and Survey Vendor Coordinator within two weeks of this meeting.

## GOVERNMENT CORNERS

Any PLSS corners within the project limits must be recovered or established and tied to the project coordinate system.

All PLSS corners must be recorded in accordance with PA 74 of 1970, as amended and all applicable administrative rules. A copy of each recorded Land Corner Recordation Certificate must be submitted to the MDOT Design Survey Office as part of the final report. All PLSS corners located in hard surface roads must be protected by a monument box, regardless of impending construction. The Vendor shall provide to the Survey Project Manager a list of any

affected Government or Property Controlling Corners in the detailed work plan for discussion or approval.

The Vendor surveyor must contact the County Remonumentation Representative prior to beginning work on the project to inform him of proposed corner perpetuation activities, and to obtain information pertinent to PLSS corners and/or property controlling corners affected by project construction.

**FINAL REPORT**: DELIVERABLES

The final report for this project shall include the following:

1. In the first pocket of the first portfolio, MDOT's Form 222(3/99) entitled "SURVEY NOTES: RECEIPT AND TRANSMITTAL."

2. The project's Professional Surveyor's Report on company letterhead consisting of the following:

    a. A comprehensive report, written and signed by the project's Professional Surveyor, of the work performed on this project.

    b. The source and the methods used to establish the project horizontal coordinates, elevations, and the alignment(s) for this project.

    c. A detailed explanation of anything discovered during the survey of this project that may create a problem for the designer or another surveyor.

3. Documentation of horizontal and vertical datum sources.

4. Least squares analysis for horizontal and vertical control.

5. Coordinate and witness lists for the horizontal alignment ties, government corners, traverse control points, and bench marks.

6. A sketch of the alignment(s) with reference points and angle of crossing (if appropriate), stationing, horizontal coordinates, curve data, and a station equation to existing stationing if different. **The alignment must be clearly noted as legal or best-fit.**

7. Control sketch with control points, government corners and alignment plotted.

8. All field survey notes, all electronic survey data files, all calculation sketches, and all research records obtained for this project. All electronic survey data files shall be submitted on Compact Discs only, specifically labeled. No paper copy of raw survey data is required.

9. Legible copies of all **recorded** Land Corner Recordation Certificates (with Liber and Page number) filed or used for the performance of this survey, and for any PLSS corners,

including Property Controlling Corners, which may be disturbed by construction.

10. It is the responsibility of the Vendor to insure that all electronic files submitted to MDOT conform to the required format and all documents are legible.

11. The Vendor must organize and label the various sections of the portfolios as required by the MDOT Design Surveys *Standards of Practice* dated April 1, 1998.

12. It is not necessary to submit hardcopy mapping data in the survey portfolio for a Vendor survey/Vendor design in the same authorization. Final planimetric map must be submitted in .PDF format.

13. It is desirable to limit paper and to include as much electronic data as possible on Compact Disc, including scanned items, to facilitate future electronic storage and transmission of survey data. **Duplicate CD's must be included in the portfolio, with one set labeled "Region Surveyor".**

**ATTACHMENT B**
**CS 82073 - JN 87146C**
**M-85 from Springwells Street to Clark Street**
**City of Detroit, Wayne County**

# SCOPE OF SERVICES
# SUBSURFACE UTILITY ENGINEERING (SUE)

**SUE** - A branch of engineering practices that involves managing certain risks associated with utility mapping at appropriate quality levels, utility coordination, utility relocation design and coordination, utility condition assessment, communication of utility data to concerned parties, utility relocation cost estimates, implementation of utility accommodation policies, and utility design. (ASCE Standard 38-02)

ASCE Standard 38-02, "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data" shall be used as the standard for all MDOT SUE work. Depending on the project, Vender may be asked to provide some or all utility quality levels A through D.

**Utility Quality Levels** - A professional opinion of the quality and reliability of utility information. Such reliability is determined by the means and methods of the professional. Each of the four existing utility data quality levels is established by different methods of data collection and interpretation. (ASCE Standard 38-02)

SUE can be applied to varying degrees on a project depending on the situation. A project may include one or multiple utility quality levels depending on the risk factor associated with each subsurface utility. Subsurface utility data evaluation is an important part of the utility coordination and SUE process. The following section provides issues to consider when determining what specific quality level to choose. The following items are not intended to be comprehensive or exclusive; they are merely set forth as a general outline of the work that is expected.

**PRIOR TO SUBMISSION OF THE VENDER'S PRICE PROPOSAL AND SCOPE OF WORK, THE VENDER SHALL MEET WITH THE MDOT PROJECT MANAGER, DESIGN TEAM AND TSC UTILITY COORDINATOR TO FINALIZE THE EXTENT THAT SUE IS USED.**

**Utility Quality Level D** - Information derived from existing records or oral recollections. (ASCE Standard 38-02)

The Vender shall –

1. Solicit utility information as outlined in section 9.02.04 (Plan Distribution Process for Utility Coordination), Chapter 9 of the Michigan Road Design Manual.

MDOT shall -

1. Provide a preliminary list of utility companies and address located within the project limits. This list may not be 100% accurate and/or complete. The Vender is responsible to identify all known and unknown utility facilities within the project limits.

**Utility Quality Level C** - Information obtained by surveying and plotting visible above-ground utility features and by using professional judgment in correlating this information to quality level D information. (ASCE Standard 38-02)

The Vender shall –

1. Survey visible above-ground utility facilities and correlate this information with existing utility records.

MDOT shall –

1. Provide a preliminary list of utility companies and address located within the project limits. This list may not be 100% accurate and/or complete. The Vender is responsible to identify all known and unknown utility facilities within the project limits.

2. Provide Vender with utility responses gathered during the base plan distribution.

**Utility Quality Level B** - Information obtained through the application of appropriate surface geophysical methods to determine the existence and approximate horizontal position of subsurface utilities. Quality level B data should be reproducible by surface geophysics at any point of their depiction. This information is surveyed to applicable tolerances defined by the project and reduced onto plan documents. (ASCE Standard 38-02)

The Vender shall –

1. Obtain all necessary permission or permits from city, county, municipality, railroad or other entity to allow the Vender to work on existing streets, roads, and private property for the purpose of marking, measuring, and recording the location of existing underground utilities.

2. Coordinate with utility companies and the appropriate governmental jurisdictions in researching the location(s) of existing utilities. Secure all "as built" plans, plats, and other necessary data as supplied by the utility companies. While obtaining the information from the utility companies or governmental jurisdictions, ascertain the age, the size, the material type, etc.

3. Designate, record, and mark the horizontal location of all existing underground utilities

and their major laterals to existing buildings. Storm sewers are not to be designated unless specifically required by MDOT. Utility depictions shall be in accordance to the conventions indicated in MDOT's English Road Design Manual. CADD files shall be submitted to MDOT on CD, in CADD format, utilizing MDOT's current version of Microstation. All survey work will be the responsibility of the Vender. Horizontal surveying of underground utilities shall be accurate to plus or minus one foot.

4. Provide all necessary equipment and support personnel, including surveying capability, to secure the data outlined in this section.

MDOT shall -

1. Provide survey control for the purposes of tying the horizontal position of the designated utilities to the State Plane Coordinate System and the project limits, including side roads. If available, MDOT will also furnish highway plans showing topography, horizontal alignments, etc. in an electronic or paper form.

2. Provide a preliminary list of utility companies and address within the project limits. This list may not be 100% accurate and/or complete. The Vender is responsible to identify all known and unknown utility facilities within the project limits.

3. If requested, provide a letter of introduction to utilities, to assist the Vender in establishing the need for their presence in a particular area.

**Utility Quality Level A** - Precise horizontal and vertical location of utilities obtained by the actual exposure (or verification of previously exposed and surveyed utilities) and subsequent measurement of subsurface utilities, usually at a specific point. Minimally intrusive excavation equipment is typically used to minimize the potential for utility damage. A precise horizontal and vertical location, as well as other utility attributes, is shown on plan documents. Accuracy is typically set to 15-mm (approximately 5/8") vertical and to applicable horizontal survey and mapping accuracy as defined or expected by the project owner. (ASCE Standard 38-02)

The Vender shall -

1. Review plans furnished by MDOT showing areas requiring test holes within the project limits. Recommend changes to MDOT's location plan based upon SUE best practices. Obtain additional company records as required.

2. Obtain all necessary permission or permits from city, county, municipality, railroad or other entity to allow the Vender to work on existing streets, roads, and private property for the purpose of marking, measuring, and recording the location of existing underground utilities.

3. Comply with any and all State law requirements for notification prior to excavation. In conformance with Public Act 53 of 1974, Michigan's one call damage prevention system

"Miss Dig", the Vender is required to phone 1-800-482-7171 a minimum of three full working days (excluding Saturdays, Sundays, and Holidays) prior to excavating near a utility.

4. Coordinate with utility company inspectors as required.

5. Neatly cut and remove existing pavement with the cut area not to exceed 225 square inches. Excavate using a method enabling vertical and horizontal exploration through this cut.

6. Excavate test holes in such a manner as to prevent any damage to wrappings coatings, or other protective coverings, such as vacuum excavation, hand digging, etc.

7. Be responsible for any damage to the utility during excavation.

8. Backfill with approved material around utility structure.

9. Furnish, install, and color code a permanent above ground marker (i.e. P.K. nail, peg, steel pin, or hub) directly above the centerline of the structure and record the elevation of the marker.

10. Provide a permanent restoration of the pavement within the limits of the original cut at the time of backfill. If the test hole is excavated in an area other than the roadway pavement, the area disturbed shall be restored to equal or better than the condition before excavation.

11. Tie all vertical elevations to a minimum of two checked benchmarks or available datum. The accuracy of these turns shall be in accordance with established surveying practices. Utility locations shall be submitted to MDOT on CD, in CADD format, utilizing MDOT's current version of Microstation. Vertical surveying of underground utilities shall be accurate to 5/8".

12. Maintain the quality of the permanent pavement restoration for 3 years.

MDOT shall -

1. Provide survey control for the purposes of tying the horizontal and vertical position of the designated utilities to the State Plane Coordinate System and the project limits, including side roads. If available, MDOT will also furnish highway plans showing topography, horizontal alignments, etc. in an electronic or paper form.

2. Furnish preliminary highway plans showing areas requiring test holes.

3. If requested, provide a letter of introduction to utilities, to assist the Vender in establishing the need for their presence in a particular area.

## Permits and Traffic Control

An annual permit (MDOT form 2205-B) and certificate of insurance (MDOT form's 2020 & 2216) shall be required from all SUE Venders. These shall be submitted to MDOT's Lansing Real Estate Division. An advance notice of permitted activity (MDOT form #2204) shall be submitted to the appropriate TSC office not less than five days prior to working within the right of way.

All maintaining traffic provisions of the permit shall be followed, as well as conformance to the requirements of Part 6 (C) of the Michigan Manual of Uniform Traffic Control Devices. If the site conditions are not addressed in the Michigan Manual of Uniform Traffic Control Devices, the Vender shall submit a written traffic plan to the TSC for approval. The Vender shall be responsible for providing all materials, equipment and personnel necessary for the maintenance of traffic. This includes, but is not limited to; temporary traffic control signs, channelizing devices, arrow panels, traffic barriers (i.e. temporary concrete barriers if required), impact attenuators, flaggers, temporary pavement markings, etc. and all other equipment and/or labor necessary to effectively implement the approved maintenance of traffic plan.

Due to the amount of traffic on certain highways, the Vender may be required to work off peak hours. In addition, the Vender shall not work on weekends, national holidays, state holidays, or the days proceeding said holidays without the written permission from the jurisdictional region/TSC office.

## Data Management

Data management involves assembling and presenting designating and locating information in a format compatible to MDOT's current version of Microstation.

## Time to Complete Work

The Vender shall complete and deliver SUE services within a mutually agreed upon time after the notice to proceed is given.

## Deliverables and Certification

1. The accuracy of the final deliverables shall be certified by a licensed professional civil engineer and/or licensed professional surveyor. Both of these professionals must be registered in the State of Michigan. The Vender shall be responsible for the accuracy of all information presented to MDOT.

2. Copies of all deliverables shall be sent to all appropriate MDOT personnel. This may include the Project Manager, TSC Utility Coordinator and the Lansing Utility

Coordination and Permits Section.

3. Provide the following test hole information (via spreadsheet format) to MDOT on CD, in CADD format, utilizing MDOT's current version of Microstation. A paper copy shall also be provided as a final deliverable.

   a. Elevation of top and/or bottom of utility tied to datum of the furnished plan.

   b. Elevation of existing grade over the utility at the test hole.

   c. Horizontal location referenced to project coordinate datum.

   d. Outside diameter of pipe or width of duct banks and configuration of non-encased multi-conduit systems.

   e. Utility structure material composition and condition, when possible.

   f. Size, type and owner of utility facility.

**ATTACHMENT C**
**CS 82073 - JN 87146C**
**M-85 from Springwells Street to Clark Street**
**City of Detroit**
**Wayne County**

**Attachment C left intentionally blank.**

**ATTACHMENT D**
**CS 82073 - JN 87146C**
**M-85 from Springwells Street to Clark Street**
**City of Detroit**
**Wayne County**

## UTILITY COORDINATION SCOPE OF WORK

For the purpose of this scope "utility coordination" means the Vendor shall participate in all stages of the Department's utility coordination process. It is the intent of this scope that the Vendor selected as a result of this solicitation employ qualified, competent, and experienced personnel to provide the services set forth herein.

The Vendor selected shall be capable of providing the following services pertaining to utility coordination work, including, but not limited to:

1. Identification of existing/proposed utility owners and their facilities.
2. Resolution of conflicts between utility facilities and proposed construction.
3. Documentation of utility company activities.
4. Evaluation and certification of utility relocation schedules for compatibility to the Department's project schedule.

### GENERAL REQUIREMENTS

The Vendor is responsible for taking the necessary steps to insure appropriate utility coordination for the project. The Vendor is expected to participate in all stages of the MDOT utility coordination process, including but not limited to: scope meetings, design meetings, pre-advertisement meetings, pre-construction meetings, field inspections, utility permit reviews, plan reviews and construction phase services. In addition, the Vendor shall provide the following services:

1. Perform subsurface utility engineering (SUE) according to the scope of work that is part of this contract (see Attachment B for details). SUE deliverables are to be included in the proposed schedule.
2. Schedule and conduct utility meetings, as necessary, to resolve conflicts between utility facilities and proposed construction. Moderate and record meeting minutes, distribute to all in attendance plus the appropriate MDOT Region/TSC Utilities/Permits Engineer and the MDOT Project Manager. The meetings, as a minimum will identify conflicts, develop utility relocation schemes, discuss possible design modifications, review the schedule of MDOT construction activities, and develop a coordinated utility activity schedule. Include resolution of all utility conflicts and utility coordination needs in the proposed project schedule.
3. Provide bi-weekly status reports to the appropriate MDOT Region/TSC Utilities/Permits Engineer, MDOT Project Manager and the MDOT Lansing Utilities-Permits Office and any other appropriate personnel as directed by the MDOT Project Manager, Mark Sweeney. The report, at a minimum, should display the control

section, project number, project location and description, report date, status of each utility and date information is expected back or when action is to be taken. Develop and maintain a status report (ie. Spreadsheet, log, etc.) regarding the project's utility status. Depending on the project, these status reports may be reduced to monthly, at the request of the Project Manager.

4. Conduct or participate in meetings convened for the purpose of utility betterments (ie. new water main and communication facilities, etc.). Develop corridor schemes and utility construction schedules.
5. Provide technical assistance to MDOT's Design Division and design vendors regarding utility relocations and project impacts. Assure that all proposed utility relocation work, either private or municipal force account work, is compatible with the proposed project and meets MDOT and other applicable standards.
6. Review utility relocation plans for compatibility with the proposed MDOT project. Confirm that all necessary utility relocation permits are submitted to the appropriate MDOT Region/TSC Utilities/Permit Engineer for issuance. Follow-up with utility companies to ensure that their utility relocations are progressing and will not adversely affect the project's schedule.
7. Prepare a Notice to Bidders and any necessary, Utility Coordination Clauses. These need to be submitted to the appropriate MDOT Region/TSC Utilities/Permits Engineer by a deadline to be determined by the MDOT Project Manager.
8. The Vendor may be required to provide Design Services during the construction phase of this project, including utility alignment staking and inspection. If Construction Assistance is required, then a separate authorization for those services will be issued.

**PLAN DISTRIBUTION AND UTILITY INFORMATION PROCURMENT**

The Vendor will be required to distribute plans on an as needed basis to the utility companies. At a minimum the following distributions shall take place:

1. The Vendor shall verify that base plans have been sent to utility companies within the project area. This will consist of an informational letter and two sets of preliminary plans (some companies may require four sets), describing the scope of the project. Initial contact should be made with all utility companies that may have facilities in the project area. Four to six weeks should be allowed for utility companies to respond back with one set of marked plans showing their facilities, copies of their "As Built" plans, or written confirmation that they have no facilities in the project area. This information will then be forwarded to the Design Project Manager.
2. Collect and compile utility company responses from each utility company. Follow up with non responsive utility companies to ensure a response is received. Establish design contacts and if different, construction contacts for the project. Review the plan note sheets and verify with the utility company that the utility company names, addresses, contacts and phone numbers are accurate.
3. Distribute Department plans at approximately 50 percent completion. These plans should have the utility locations plotted and provide sufficient detail for utility companies and the utility coordinator to determine conflicts (ie: storm sewer design).

The Department's standard plan distribution letter, authorizing utility companies to begin preliminary engineering and also notifying the utility company of their responsibility to relocate facilities under Act 368, P.A. of 1925, needs to be included with this plan distribution.

4. Copies of any correspondence sent to any utility company should be sent to the appropriate MDOT Region/TSC Utilities/Permits Engineer, MDOT Project Manager and the MDOT Lansing Utilities-Permits Office and any other appropriate personnel unless otherwise directed.

**PERMIT REVIEWS**

Review utility relocation plans and new permit applications for compatibility with the proposed MDOT project. Confirm that all necessary utility relocation permits are submitted to the appropriate MDOT Region/TSC Utilities/Permits Engineer for issuance. To ensure that utility relocations are progressing and will not adversely affect the project's schedule, follow up with the appropriate utility companies.

**REIMBURSABLE UTILITY RELOCATIONS**

Ensure that eligible reimbursable utility relocations, under Federal-Aid Policy Guide 23 CFR 645A and 645B and MDOT Utility Accommodation Policy are identified. Confirm that the utility companies submit the necessary information (ie. Permit applications, property rights, estimates, etc.) as to meet the aforementioned guidelines to the appropriate MDOT Region/TSC Utilities/Permits Engineer for processing and authorization.

**DESIGN ANALYSIS AND RECOMMENDATIONS**

When the Vendor has obtained all necessary utility information, the Vendor shall determine to what extent the proposed roadway and/or bridge improvements will impact the existing utilities. The Vendor shall prepare a report outlining avoidance alternates, required adjustments, relocations, and cost estimates to perform those relocations.

**STAKING, PERMIT INSPECTION AND CONSTRUCTION PHASE SERVICES**

The Vendor may be requested to provide any needed alignment staking for utility relocations. Staking shall be consistent with the project's survey control. The Vendor will be responsible for the accuracy, per applicable survey standards, when performing survey work. The Vendor performing any surveys must be on the Department's pre-approved surveyors list.

The Vendor may be asked to oversee and inspect utility relocations. Reports of this activity and the Department's Permit Inspection Report (Form #2213) will need to be sent to the appropriate Region/TSC Utilities/Permits Engineer.

Construction phase services may be requested. This may include attending the preconstruction meeting and presenting the utility coordination work. It also may involve working with the Department's Resident Engineer and utility company to resolve utility conflicts discovered

during construction. If Construction Assistance is required, then a separate authorization for those services will be issued.

## CERTIFICATION

This certification will include all necessary copies of correspondence and will be signed by a duly authorized representative of the firm. After certification, the project files will be forwarded to the appropriate MDOT Region/TSC Utilities/Permits Engineer. The Vendor will certify to the MDOT Region/TSC Utilities/Permits Engineer the following:

1. All utility work has been completed or that all arrangements have been made for it to be undertaken and completed as required for proper coordination with the projects construction schedule.
2. Plans were sent to all utility agencies, responses were received, and no utility relocation is required.

## DEPARTMENT RESPONSIBILITIES

1. The MDOT Region/TSC Utilities/Permits Engineer or appropriate representative will notify the Vendor when to proceed with work by issuance of a work authorization. Work authorizations shall identify the project's location, scope, and required "due dates" to complete the utility coordination.
2. Provide the Vendor, when appropriate, survey control to be used for any required surveying the Vendor may need to perform.
3. Provide a preliminary list of utility companies within the project limits. This list may not be 100% accurate and/or complete. The Vendor is responsible to identify all known and unknown utility facilities within the project limits.
4. Provide the Vendor with any appropriate Department form letters.
5. The Department shall have the authority to suspend the work, in full or in part, for such period or periods as may be deemed necessary due to conditions that are considered unfavorable work performance, or for the failure on the part of the Vendor to comply with any or all provisions of the contract. Such suspension shall be ordered in writing, giving in detail the reasons for the suspension.

**ATTACHMENT E**
**CS 82073 - JN 87146C**
**M-85 from Springwells Street to Clark Street**
**City of Detroit**
**Wayne County**

## CRASH ANALYSIS REPORTS

The Vendor shall provide MDOT with a Crash Analysis Report, which shall detail the safety performance of the project location (includes not only the mainline, but all ramps, major and minor intersections, and crossovers within the project limits), and provide detailed graphic depiction of countermeasures, and cost/benefit analysis for crash concentration locations.

The Crash Analysis Report shall, at a minimum, compare the project location features (mainline, ramps, major intersections, minor intersections and crossovers) to regional averages, identify crash concentration locations, examine crash concentration locations for crash patterns and provide countermeasures for correctable crash patterns. The Vendor shall combine a thorough review of computer-based crash records with field reviews of the roadway's characteristics (geometric and operational features shall be specifically noted), to identify crash concentration locations. The Vendor shall provide a Draft Crash Analysis Report and upon review and comment by MDOT, the Vendor shall make any changes identified and submit a Final Crash Analysis Report.

The Vendor shall at a minimum review and analyze the most recent three years of MDOT crash data. If there is a fatality within those three years, the Vendor shall review and analyze an additional 7 years of crash data. For the analysis, the Vendor shall stratify the data by location and the crash data shall also be aggregated by similar roadway segment characteristics. The Vendor shall quarry SEMCOG to determine regional crash averages which will provide a normative measure of comparison to aid in the identification of crash concentration locations.

The Vendor shall identify crash concentration locations and determine crash patterns. Based on the crash patterns identified for each crash concentration location the Vendor shall develop proposed crash countermeasures. The countermeasures shall be graphically depicted, to scale, with sufficient detail to determine the countermeasures impact to the existing roadway and the proposed roadway improvement.

The countermeasures may range from simple sign / marking / signal modifications up through substantial reconstruction. The Vendor shall present countermeasures stratified into short and long-term solutions. The Vendor shall provide a construction cost estimate for each countermeasure using MDOT Pay Items and shall clearly identify any Right-Of-Way impacts a countermeasure may have. The Vendor shall provide a full cost/benefit analysis for each countermeasure. The Vendor shall also evaluate the crash impacts on design exceptions sought.

**ATTACHMENT F**
**CS 82073 - JN 87146C**
**M-85 from Springwells Street to Clark Street**
**City of Detroit**
**Wayne County**

## SCOPE OF WORK FOR DRAINAGE STUDY

The Vendor is to conduct a site investigation of the drainage within the limits of the project. The purpose of this study is to determine where hydraulic analyses and/or surveys are required. If further hydraulic analyses and/or surveys are required, then MDOT will issue a separate authorization for those services.

Work Steps:

1. Prepare a typed report summarizing the drainage affected by the project. For every culvert carrying natural drainage within the MDOT Right-Of-Way, provide the following information:

    a. Stream name
    b. Exact location of the culvert, including Section, Town, Range, and Township
    c. Size, type, and condition of culvert
    d. Any evidence of scour or erosion
    e. Any evidence that the structure is undersized
    f. Any county drains
    g. Photographs of the upstream face, downstream face, looking upstream, and looking downstream, as well as any drainage structures, buildings, or farmland that may affect or be affected by the culvert
    h. Drainage area, including delineation on a USGS quadrangle map (or local contour map, if more up-to-date)
    i. Type of work proposed, including existing and proposed lengths

2. The report must include any other effects on the drainage; for example, a raise in road grade or widening.

3. Submit the drainage study to the MDOT Project Manager for review and approval by the Design Engineer - Hydraulics/Hydrology.

4. Receive any items returned by the MDOT Project Manager as incomplete or deficient.

5. Make necessary changes and resubmit the incomplete items, including a written response to all comments.

**ATTACHMENT G**
**CS 82073 - JN 87146C**
**M-85 from Springwells Street to Clark Street**
**City of Detroit**
**Wayne County**

## CONSTRUCTION CRITICAL PATH NETWORKS

## I. INTRODUCTION

The Vendor is required to submit a Construction Critical Path Network at various points in the design process. Refer to the following:

P/PMS TASK 3580 - DEVELOP PRELIMINARY PLANS

P/PMS TASK 3830 - COMPLETE THE CONSTRUCTION ZONE TRAFFIC CONTROL PLAN

P/PMS TASK 3840 - DEVELOP FINAL PLANS AND SPECIFICATIONS

Construction Critical Path Networks are often needed to develop the progress schedule for a project. They are required on any project designated to include an Incentive/Disincentive or Special Liquidated Damages clause. Construction Critical Path Networks are also recommended for projects with the following characteristics:

1. New construction.
2. Major reconstruction or rehabilitation on an existing roadway that will severely disrupt traffic.
3. Unique or experimental work.
4. More than one construction season.
5. Complex staging (multiple stages with traffic shifts).

As noted in MDOT's Construction and Technology Instructional Memorandum 1997-7, Progress Schedule Determinations/Critical Path Rates,

> *preparation of a Critical Path is a requirement on <u>all</u> Vendor-designed projects, regardless of the project type or complexity*

The MDOT Resident Engineer assigned to the project should be consulted when developing Construction Critical Path Networks.

MDOT requires the precedence diagramming method. The Vendor will submit this network in MPX version 4.0.

## II. NETWORK DEVELOPMENT

The network will be defined using the following steps.

1. Activity definition.
2. Activity sequencing.
3. Duration estimation.
4. Schedule development.

### 1. ACTIVITY DEFINITION

The Vendor will define the specific activities in enough detail so that the proper objectives will be met. The Vendor must identify assumptions (those factors considered true, real or certain). Supporting detail for the activities should be documented and organized as needed to simplify the review of the activities by MDOT personnel.

The Construction Critical Path Network must start with the **Letting Date** as the first activity and terminate with the **End of Project** as the finish activity.

A sufficient number of activities will be required with sufficient detail so that the controlling construction operation(s) may be identified. Notation on each activity shall include a brief work description and activity time duration.

### 2. ACTIVITY SEQUENCING

Activity sequencing involves identifying and documenting interactivity dependencies. The Vendor must sequence activities accurately to support later development of a realistic and achievable construction schedule. Two types of dependencies should be considered. Mandatory dependencies are inherent in the nature of the work being done, such as construction sequencing. Discretionary dependencies are based on a knowledge of the work to be done. Constraints are used to show how the activities relate to each. The Vendor must include documentation supporting all discretionary dependencies used in the project. All activities must lead to another activity. Only Start to Start, Finish to Finish and Finish to Start relationships will be allowed. All logic shall show how the given activity is dependent on its preceding activities.

### 3. DURATION ESTIMATION

After the Vendor has sequenced the activities, the Vendor should determine the activity duration. Activity duration estimating involves assessing the number of work periods likely to be needed to accomplish each activity. Duration (working days): No activity will have a duration greater than 20 working days unless approved by the Engineer. Activities that will be allowed to exceed 20 working days include, but are not limited to, working drawing approvals or other activities not under the control of the Contractor. If requested by the Engineer, the Vendor shall explain the reasonableness of activity time durations. The approved MDOT production rates will be used in estimating activity

duration. These are available in the Supplemental Information section of this attachment. The Vendor must document and submit all assumptions made during the duration estimation to MDOT.

### 4. SCHEDULE DEVELOPMENT

The activity sequencing, duration estimations and the calendars are combined to create the construction schedule. During the development of the schedule the Vendor will verify:

1. The required schedule to build the project.
2. The constructability of the project.
3. If the maintaining traffic scheme will work.
4. If seasonal limitations will affect the construction.
5. Any other project specific considerations.

The MDOT Calendars will be used by the Vendor in developing the network. The calendars are based on a 4, 5 or 6 day work week. The MDOT Calendars are included in the Supplemental Information section of this attachment.

At this point there should be no negative float in the network. If there is, there is an error in the network and the error must be corrected before network submittal.

All summary tasks shall be removed prior to submittal to MDOT Project Manager

## III. DELIVERABLES

After this final step the design Vendor will submit the finished CPM schedule to MDOT

### 1. Documents

A. 11" x 17" plot of the network. The critical path shall be clearly identified on the plot. A larger plot may be required for complex networks.

B. Work Day / Completion Date Determination Worksheet.

C. List of any other assumptions or controlling factors used in creating the network. For example, permit or maintaining traffic restrictions.

### 2. Electronic Format

This section sets the requirements for the eletronic submittal of the Vendor's Construction Network. All networks shall be submitted on a 3.5 inch floppy disk (or via E-mail) using one of the following formats:

A. **Standard Electronic Media Format:** This is a standard ASCII text file containing the data elements below, in the order specified. This file can be created using any text editor or word processing application ( i.e., MS-Word, WordPerfect, Notepad, Write) but must be saved as an ASCII file.

The **first line** will provide a descriptive header describing the submittal and containing:

Control Section
Job Number
Route
Vendor name
Date of Submittal

The next line will be **blank**, followed by multiple data lines.

Each **data line** will contain one record pertaining to one task of the job. Separate data fields by a comma. Fields within each task line are as follows:

(Note that the term "task" is synonymous with "activity." Leave fields that are not required blank)

(1) Task # (Job # followed by a hyphen followed by this task's unique 4 digit task number. This is the Preceding Event Activity Code)
(2) Description of Task, Milestone or Hammock, blank if this record is a constraint
(3) Calendar (see attached list)
(4) Duration of task, blank for constraints
(5) Task # of the next task (Succeeding Event) - leave blank if this record is not a constraint or hammock
(6) Type of constraint (FS, SS, FF) - leave blank if this record is not a constraint.
(7) Delay, if required
(8) Original "Baseline" Start Date
(9) Original "Baseline" Finish Date
(10) Current (forecast) Start Date (early start)
(11) Current (forecast) Finish Date (early finish)
(12) Estimated completion date (if different from early start + current duration)
(13) Late Start Date
(14) Late Finish Date
(15) Actual Start Date
(16) Actual Finish Date

Example - each line contains the following:

Task # (preceding event), Description, Calendar, Duration, Next Task # (succeeding event), Constraint Type, Delay, Baseline Start, Baseline Finish, Early Start, Early Finish, Estimated Completion Date, Late Start, Late Finish, Actual Start, Actual Finish, Total Float.

B. **Primavera Project Planner(P3) 2.0 Export Procedure:** Users who have Primavera Project Planner(P3) version 2.0 can automatically create a export file by following the export procedure below. **Users having an older version of Primavera may use the applications export feature only if they are able to include all the data elements listed in the version 2.0 format.**

**1.** Choose Tools, Project Utilities, **EXPORT**
**2.** Click **ADD**, then click **OK** to accept the next sequential ID number, or type a unique number to identify the specifications and click **OK**
**3.** Enter a description for the specification in the Title field
**4.** Specify data items to export

**Activities**
- Select **Contents of List**
- Use the Description column to specify which data items to export
- To add items, click the right mouse button in the Description column and choose from the list. Suggested Items include: **Activity ID, Activity Description, Actual Start, Actual Finish, Calendar ID, Early Start, Early Finish, Late Start, Late Finish, Original Duration.**
- Select **All Current, All Target**, or **All Target2**
- Set Description Length to 48

**OR**

**Constraints**
- Select **Successor relationships** - Choose this option to export Activity IDs and their corresponding successors only. Lags and relationship types will also be displayed in this output file.

**5.** Click **FORMAT** in Export Dialog Box
**6.** In the Output file section, enter a new name and path (ex. A:\actexp or A:\conexp). Do not include a file extension.
**7.** In the type field, click the minimize button and choose the **[.PRN] - ASCII** file format for the output file.
**8.** Select **CALENDAR** for Date Format
**9.** Set ASCII Output Field Separation to **1** and Blank column width to **0**
**10.** Click **RUN**
**11.** In the Output Options dialog box, click on **OK**

**NOTE: A COMPLETED FILE EXPORT WILL CONSIST OF 2 EXPORT FILES (ACTIVITIES & CONSTRAINTS)**

C. **Microsoft Project Export Procedure:** Users of Microsoft Project Version 4.0 and above can create a Microsoft Project Exchange (MPX) file by following the procedure below.

**1.** Choose File, Save As from the main menu
**2.** In the Save File as Type box Select **MPX 4.0**
**3.** On the drive box select a: or whichever drive is the 3.5" Floppy drive
**4.** Click on **OK**

This saves the file in MPX format.

D. **Primavera Sure Track:** Users of Sure Track Version 2.0 and above can create a Microsoft Project Exchange (MPX) file by following the procedure below.

**1.** Choose File, Save As from the main menu
**2.** In the filename box input a filename
**3.** In the Save File as Type box Select **MPX**
**4.** On the drive box select a: or whichever drive is the 3.5" Floppy drive
**5.** Click on **OK**

This saves the file in MPX format

E. **Scitor Project Scheduler 7 Export Procedure:** Users of Scitor Project Scheduler Version 7 and above can create a Microsoft Project Exchange (MPX) file by following the procedure below.

**1.** Choose File, Save As from the main menu
**2.** In filename box select a filename
**3.** In the Save File as Type box Select MPX
**4.** On the drive box select a: or whichever drive is the 3.5" Floppy drive
**5.** Click on **OK**

This saves the file in MPX format

F. **Export Files with Other Scheduling Applications:** Most scheduling packages have export functions similar to those described above. If the Vendor chooses to use packages with export capabilities, they shall include all items listed in the Standard Media Format in a text or ASCII type file.

## IV. SUPPLEMENTAL INFORMATION

## A. MDOT CRITICAL PATH-CONSTRUCTION TIME ESTIMATES

| | |
|---|---|
| **Drainage** | |
| Cross Culverts | |
| Rural Highways | 44 yd./day |
| Expressways | 55 yd./day |
| Large Headwalls | 5 days/unit |
| Slab or Box Culverts | 5 days/pour |
| Plowed in Edge Drain (production type project) | 4921 yd./day |
| Open Graded Underdrain (production type project) | 1312 yd./day |
| Sewers | |
| 0m-5m(up to 60 in. (1500mm)) | 44 yd./day |
| 0m-5m(over 60 in. (1500mm)) | 27 yd./day |
| 5m-over(up to 60 in. (1500mm)) | 27 yd./day |
| 5m-over(over 60 in. (1500mm)) | 22 yd./day |
| Jacked-in-place | 14 yd./day |
| including excavation pit & set up | min. 5 days |
| Tunnels | |
| hand mining | 9 yd./day |
| machine mining | 22 yd./day |
| including excavation pit & set up | min. 5 days |
| Manholes | 3 units/day |
| Catch Basin | 4 units/day |
| **Utilities** | |
| Water Main(up to 16 in. (400mm)) | 109 yd./day |
| Flushing, Testing & Chlorination | 4 days |
| Water Main(20 in. (500mm) – 40 in. (1050mm)) | 27 yd./day |
| Flushing, Testing & Chlorination | 5 days |
| Order & Deliver 24 in. (600 mm) HP Water Main | 50 days/order |
| Gas Lines | 109 yd./day |

| **Earthwork and Grading** | **Metro Exp** | **Rural** |
|---|---|---|
| Embankment(CIP) | 1962 $yd.^3$/day | 6932 $yd.^3$/day |
| Excavation and/or Embankment(Freeway) | 1962 $yd.^3$/day | 12033 |

| | | yd.$^3$/day |
|---|---|---|
| Excavation and/or Embankment(Reconstruction) | 981 yd.$^3$/day | 4970 yd.$^3$/day |
| Embankment(Lightweight Fill) | 392 yd.$^3$/day | 785 yd.$^3$/day |
| Muck(Excavated Waste & Backfill) | 1962 yd.$^3$/day | |
| Excavation(Widening) | 656 yd./day | |
| Grading(G & DS) | 820 yd./day | |
| Subbase and Selected Subbase(up to 8 yd. (7.4m)) | 656 yd./day | |
| Subbase and Selected Subbase(8 yd. (7.4 m) & over) | 492 yd./day | |
| Subgrade Undercut & Backfill | 1962 yd.$^3$/day | |
| Subbase & Open-Graded Drainage Course | 492 yd./day | |

**Surfacing**

| | |
|---|---|
| Concrete Pavement (8 ft. (7.3m)) | 492 yd./day |
| Including Forming & Curing | min. 7 days |
| Bituminous Pavement (8 ft. (7.3m)) | 1312 yd./day/course |
| Concrete Ramps(5.6 yd. (4.9m)) | 328 yd./day |
| Including Forming & Curing | min. 7 days |
| Curb(1 side) | 820 yd./day |
| Concrete Shoulder-Median | 1435 yd.$^2$/day |
| Bituminous Shoulders(1 side per course) | 820 yd./day |
| Sidewalk | 215 yd.$^2$/day |
| Sidewalk(Patching) | 78 yd.$^2$/day |

**Structures**

| | |
|---|---|
| Sheeting(Shallow) | 33 yd./day |
| General Excavation at Bridge Site | 981 yd.$^3$/day |
| Excavation for Substructure(Footings) | 1 unit/day |
| Piles(12m) | 15 piles/day |
| Substructure(Piers & Abutments) | 5 days/unit |

Order and Delivery of Beams

| | |
|---|---|
| Plate Girders | 100-120 days/order |
| Rolled Beams | 90-120 days/order |
| Concrete Beams | 50 days/order |

| | |
|---|---|
| Erection of Structural Steel | 3 days/span |
| Bridge Decks | |
| Form & Place Reinforcement(66 yd. (60m) Structure) | 15 days |
| Pour Deck Slab(1 1/5 days/pour) | 2 days/span |
| Cure | 14 days |
| 2 Course Bridge Decks | |
| Add 9 days for Second Course Latex | |
| Add 12 days for Second Course Low Slump | |
| Sidewalks and Railings | |
| Sidewalks and Parapets | 5 days/span |
| Slip Formed Barriers | 2 days/span |
| Clean Up | 10 days |
| Pedestrian Fencing | |
| Shop Plan Approval & Fabrication | 1-2 months |
| Erection | 1 week/bridge |
| Rip Rap Placement | |
| Bucket Dumped | 504 $yd.^3$/day |
| Bucket Dumped and Hand Finished | 171 - 684 $yd.^3$/day |
| **Retaining Walls** | 1 Panel/day<br>min. 10 days |
| **Railroad Structures** | |
| Grade Temporary Runaround | 981 $yd.^3$/day |
| Ballast, Ties & Track | 55 yd./day |
| Place Deck Plates | 5 days/span |
| Waterproof, Shotcrete & Mastic | 5 days/span |
| **Railroad Crossing Reconstruction** | 10-15 work days |
| (depends on whether concrete base is involved) | |
| **Temporary Railroad Structures** | |
| Order & Deliver Steel | 55 days/order |
| Erect Steel | 1 day/span |
| Ties and Track | 3 days/span |
| **Pumphouse** | |
| Structure | 30 days/structure |
| Order & Deliver Electrical & Mechanical Equipment | 90 days |

| | |
|---|---|
| Install Electrical & Mechanical Equipment | 30 days |

**Miscellaneous**

| | |
|---|---|
| Removing Old Pavement | 66 yd./day |
| Removing Old Pavement for Recycling(8 yd. (7.3m)) | 492 yd./day |
| Crushing Old Concrete for 6A or OGDC | 1488 tons/day |
| Removing Trees(Urban) | 15 units/day |
| Removing Trees(Rural) | 30 units/day |
| Removing Concrete Pavement | 538 $yd.^2$/day |
| Removing Sidewalk | 299 $yd.^2$/day |
| Removing Curb & Gutter | 492 yd./day |
| Removing Bituminous Surface | 1914 $yd.^2$/day |
| Conditioning Aggregate | 984 yd./day |
| Bituminous Base Stablizing | 2990 $yd.^2$/day |
| Ditching | 656 yd./day |
| Trenching for Shoulders | 820 yd./day |
| Station Grading | 667 yd./day |
| Clearing | 9568 $yd.^2$/day |
| Restoration(Topsoil, Seeding, Fertilizer & Mulch) | 1973 $yd.^2$/day |
| Sodding | 2512 $yd.^2$/day |
| Seeding | 47840 $yd.^2$/day |
| Guard Rail | 252 yd./day |
| Fence(Woven Wire) | 394 yd./day |
| Fence(Chain Link) | 164 yd./day |
| Clean Up | 656 yd./day |

| | |
|---|---|
| Concrete Median Barrier | 328 yd./day |
| Cure | min. 7 days |
| Reroute Traffic(Add 4 days if 1st item) | 1 day/move |
| Concrete Glare Screen | 492 yd./day |
| Light Foundations | 6 units/day |
| Order & Delivery | 6-8 week/order |
| Remove Railing & Replace with Barrier(1 or 2 decks at a time) | 4 days/side |
| Longitudinal Joint Repair | 1750 yd./day |
| Crack Sealing | 5249 yd./day |
| Joint and Crack Sealing | 547 yd./day |
| Repairing Pavement Joints - Detail 7 or 8 | 219 yd./day |

| | |
|---|---|
| Seal Coat | 6999 lane yd./day |
| Diamond Grinding/Profile Texturing Concrete | 3947 $yd.^2$/day |
| Rest Area Building | |
| Order Material | 3 months |
| Construct Building | 9 months |
| Tower Lights | |
| Order and Deliver Towers | 100 days |
| Weigh-In-Motion | |
| Order and Deliver Materials | 1 month-6weeks |
| O & D with Installation | 3 months |
| Raised Pavment Markers | 300 each/day |
| Attenuators | 2 each/day |
| Shoulder Corrugations, Ground or Cut | 5 - 6 mi./side/day |
| Aggregate Base | 3468 $yd.^2$/day |
| Aggregate Shoulders | 458 $yd.^3$/day |
| Freeway Signing - 3# Post Type | 50 signs/day |

**Concrete Joint Repair** (High Production-Projects with > 1000 patches)

| | |
|---|---|
| Average(2 yd. (1.8m)) | 50 patches/day |
| Large(>2 yd. (1.8m)) | 598 $yd.^2$/day |

| | |
|---|---|
| **Bridge Painting** | 108 $yd.^2$/day |
| **Pin and Hanger Replacement** | 3 beams/day |
| Order Pin & Hanger | 60 days |

**Bridge Repair**

| | |
|---|---|
| Scarifying(Including Clean up) | 11960 $yd.^2$/day |
| Joint Removal(Including Clean up) | 4 yd./day |
| Forming & Placement | 3.8 yd./day |
| Hydro-Demolishing | 328 yd./day |
| Barrier Removal | 16 yd./day |
| Placement | 49 yd./day |
| Hand Chipping (Other than Deck) | 0.31 $yd.^{3/}$person/day |
| Shoulder Corrugations, Ground or Cut | 5 - 6 mi./side/day |
| Casting Latex Overlay | 273 yd./day |
| Curing Overlay | |
| Regular | 4 days |

| | |
|---|---|
| High Early | 1 day |
| Thrie Beam Retrofit | 33 yd./day |
| Beam End Repairs | |
| Welded Repairs | .75 days/repair |
| Bolted Repairs | .50 days/repair |
| Bolted Stiffeners (Pair) | .25 days/repair |
| Grind Beam Ends | .25 days/repair |
| Welded Stiffeners (Pair) | .25 days/repair |
| H-Pedestal Repairs: | |
| Welded Repair | .50 days/each |
| Replacement | 1 day/each |
| Deck Removal | 281 $yd.^2$/day |

**Surfacing-Bituminous**

| | |
|---|---|
| Metro-Primary(<(19800 tons (18000mtons)) | |
| Paving | 594 tons/day |
| Joints | 164 yd./day |
| Cold Milling | 4066 $yd.^2$/day |
| Aggregate Shoulders | 990 tons/day |
| Metro Primary(>(19800 tons (18000mtons)) | |
| Paving | 594 tons/day |
| Joints | 219 yd./day |
| Cold Milling | 8970 $yd.^2$/day |
| Metro Interstate(>(19800 tons (18000mtons)) | |
| Paving | 1210 tons/day |
| Joints | 394 yd./day |
| Aggregate Shoulders | 990 tons/day |
| Urban Primary(<(19800 tons (18000mtons)) | |
| Paving | 704 tons/day |
| Joints | 109 yd./day |
| Cold Milling | 2033 $yd.^2$/day |
| Rubblizing | 2033 $yd.^2$/day |
| Aggregate Shoulders | 495 tons/day |
| Urban Primary(>(19800 tons (18000mtons)) | |
| Paving | 1100 tons/day |
| Joints | 131 yd./day |
| Cold Milling | 2033 $yd.^2$/day |
| Aggregate Shoulders | 550 tons/day |
| Urban Interstate(>(19800 tons (18000mtons)) | |

| | |
|---|---|
| Paving | 1320 tons/day |
| Joints | 241 yd./day |
| Cold Milling | 2033 $yd.^2$/day |
| Rubblizing | 6937 $yd.^2$/day |
| Aggregate Shoulders | 704 tons/day |
| Rural Primary(<(19800 tons (18000mtons)) | |
| Paving | 704 tons/day |
| Joints | 131 yd./day |
| Cold Milling | 649 tons/day |
| Crush & Shape | 11960 $yd.^2$/day |
| Aggregate Shoulders | 704 tons/day |
| Rural Primary(>(19800 tons (18000mtons)) | |
| Paving | 1210 tons/day |
| Joints | 164 yd./day |
| Cold Milling | 880 tons/day |
| Crush & Shape | 11960 $yd.^2$/day |
| Rural Interstate(>(19800 tons (18000mtons)) | |
| Paving | 1411 tons/day |
| Joints | 240 yd./day |

**B. WORKSHEET**

**WORK DAY/COMPLETION DATE DETERMINATION**

CS: _____ JN:

DESCRIPTION OF WORK: _____

| MAJOR WORK ITEM | PRODUCTION QUANTITY | RATE | ESTIMATED TIME |
|---|---|---|---|
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TOTAL ESTIMATED TIME:

COMPLETION DATE: _____ (Calendar Days or Work Days)

COMMENTS:

_____
_____
_____
_____
_____

## C. MDOT CALENDARS

The following are the MDOT 4, 5 and 6 day calendars:

| CALENDAR | DESCRIPTION | START | FINISH |
|---|---|---|---|
| 1 | Std - Apr 16 - Nov 15 - 4 day | APR 16 | N0V 15 |
| 2 | LP - Bit Stab - 4 day | MAY 15 | OCT 15 |
| 3 | UP - Bit Stab - 4 day | JUN 01 | OCT 01 |
| 4 | LP S of M-46 - Bit Pave - 4 day | MAY 05 | NOV 15 |
| 5 | LP N of M-46 - Bit Pave - 4 day | MAY 15 | NOV 01 |
| 6 | UP - Bit Pave - 4 day | JUN 01 | OCT 15 |
| 7 | LP - Bit Seal Coat - 4 day | JUN 01 | SEP 15 |
| 8 | UP - Bit Seal Coat - 4 day | JUN 15 | SEP 01 |
| 9 | Tree Planting - Deciduous - 4 day | MAR 01<br>OCT 01 | MAY 15<br>NOV 15 |
| 10 | Tree Planting - Evergreen - 4 day | MAR 01 | JUN 01 |
| 11 | South LP - Restoration - 4 day | MAY 01 | OCT 10 |
| 12 | North LP - Restoration - 4 day | MAY 01 | OCT 01 |
| 13 | UP - Restoration - 4 day | MAY 01 | SEP 20 |
| 14 | Full Year - Winter Work - 4 day | JAN 01 | DEC 31 |
| 21 | Std - Apr 16 - Nov 15 - 5 day | APR 16 | NOV 15 |
| 22 | LP - Bit Stab - 5 day | MAY 15 | OCT 15 |
| 23 | UP - Bit Stab - 5 day | JUN 01 | OCT 01 |
| 24 | LP S of M-46 - Bit Pave - 5 day | MAY 05 | NOV 15 |
| 25 | LP N of M-46 - Bit Pave - 5 day | MAY 15 | NOV 01 |
| 26 | UP - Bit Pave - 5 day | JUN 01 | OCT 15 |
| 27 | LP - Bit Seal Coat - 5 day | JUN 01 | SEP 15 |
| 28 | UP - Bit Seal Coat - 5 day | JUN 15 | SEP 01 |
| 29 | Tree Planting - Deciduous - 5 day | MAR 01<br>OCT 01 | MAY 01<br>NOV 15 |
| 30 | Tree Planting - Evergreen - 5 day | MAR 01 | JUN 01 |
| 31 | South LP - Restoration - 5 day | MAY 01 | OCT 10 |

| | | | |
|---|---|---|---|
| 32 | North LP - Restoration - 5 day | MAY 01 | OCT 01 |
| 33 | UP - Restoration - 5 day | MAY 01 | SEP 20 |
| 34 | Full Year – Winter Work - 5 day | JAN 01 | DEC 31 |
| 35 | Full Year - Expedited - 6 day | JAN 01 | DEC 31 |

**ATTACHMENT H**
**CS 82073 - JN 87146C**
**M-85 from Springwells Street to Clark Street**
**City of Detroit**
**Wayne County**

## MONTHLY PROGRESS REPORTS

The first two pages of this attachment are the necessary layout of the Monthly progress reports and the last three pages are a completed example.

**Control Section** 00000
**Job Number** 00000C
**Structure Number** S00
**Date** 00/00/00

## MONTHLY PROGRESS REPORT

A. Work accomplished during the previous month.

B. Anticipated work items for the upcoming month.

C. Real or anticipated problems on the project.

D. Update of previously approved detailed project schedule (attached), including explanations for any delays or changes.

E. Items needed from MDOT.

F. Copy of Verbal Contact Records for the period (attached).

**Structure Number – Control Section – Job Number**
**Route, Location Description**
Design Schedule as of 00/00/00

**LIST TASKS, SUBMITTALS, APPROVALS AND MEETINGS AS OUTLINED IN SCOPE OF DESIGN SERVICES AS NEEDED. THIS LIST IS JUST AN EXAMPLE.**

| Original Authorized Start Date | Original Authorized Finish Date | (Anticipated) or **Actual** Start Dates | (Anticipated) or **Actual** Finish Dates | Task | Task Description |
|---|---|---|---|---|---|
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | ?? | Initial project meeting. |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3330 | Conduct Design Survey |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3360 | Prepare Base Plans |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | | Submit Base Plans |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3580 | Develop Preliminary Plans |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3390 | Develop Construction Zone Traffic Control Concepts |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3540 | Develop Construction Zone Traffic Control Plan |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3550 | Develop Preliminary Traffic Operations Plan |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3351 | Review & Submit of Preliminary Right-Of-Way Plans |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | | Submittal of The Plan Review Package |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | | Completion of The Plan Review Meeting |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3840 | Develop Final Plans and Specs |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | | Submittal of final plans/proposal package to MDOT for final review |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | 3870 | Omissions/Errors Check (OEC) Meeting |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | | Vendor's Plan Completion: Final Construction Plan/Proposal Package with recommendations Incorporated to MDOT (two weeks After OEC Meeting) |
| 00/00/00 | **00/00/00** | 00/00/00 | **00/00/00** | | Final Deliverables to MDOT |

**Control Section** 12345
**Job Number** 11111C
**Structure Number** S02
**Date** 07/31/95

## MONTHLY PROGRESS REPORT

A. Work accomplished during the previous month.

1. During the last month we completed the Final Right of Way plans and submitted them to Thomas Nelson, Jr. on 05/01/99.

B. Anticipated work items for the upcoming month.

1. Submit the Preliminary Plans and related material on 03/11/99.

2. Attend the meeting regarding the Ameritech lines on the bridge, scheduled for 03/12/99.

C. Real or anticipated problems on the project.

1. We foresee no problems at this time.

D. Update of previously approved detailed project schedule (attached), including explanations for any delays or changes.

1. The design is falling behind schedule because we had problems resolving the geometries of the ramps in relation to the bridge. The Preliminary Plan submittal will be the only task affected by this delay because we will make up the lost time prior to submitting the Final Plans and Specifications.

E. Items needed from MDOT.

1. Prior to final Plan submittal we will need the latest Special provision and Supplemental Specification checklist.

F. Copy of Verbal Contact Records for the period (attached).

1. Discussed bridge and ramp geometries with Tom Myers of M$DOT Traffic and Safety Division on 07-24-95.

**SN: S02 - CS: 12345 - JN: 11111C**
**M-111, from There Village Limits to north of That Road**
Design Schedule as of 07/31/95

| Original Authorized Start Date | Original Authorized Finish Date | (Anticipated) or **Actual** Start Dates | (Anticipated) or **Actual** Finish Dates | Task | Task Description |
|---|---|---|---|---|---|
| 01/12/95 | 01/12/95 | **01/12/95** | **01/12/95** | ?? | Initial project meeting. |
| 01/29/95 | 01/29/95 | **01/30/95** | **01/30/95** | 3330 | Conduct Design Survey. |
| 02/17/95 | 04/10/95 | **02/17/95** | **04/20/95** | 3360 | Prepare Base Plans. |
| 02/29/95 | 02/29/95 | **02/29/95** | **02/29/95** | 3390 | Develop the Construction Zone Traffic Control Concepts |
| 03/12/95 | 03/13/95 | **03/12/95** | (03/30/95) | 3540 | Develop Construction Zone Traffic Control Plan |
| 03/20/95 | 03/19/95 | **03/25/95** | (03/30/95) | 3551 | Develop/Review Preliminary Traffic Signal Plan |
| 07/01/95 | 07/01/95 | (07/01/95) | (07/01/95) | 3590 | The Plan Review Meeting |
| 07/11/95 | 08/11/95 | (07/11/95) | (08/11/95) | 3821 | Complete/Review Traffic Signal Plan |
| 09/15/95 | 09/15/95 | (09/15/95) | (09/15/95) | 3830 | Complete Construction Zone Traffic Control Plan. |
| 09/16/95 | 09/16/95 | (09/16/95) | (09/16/95) | 3840 | Develop Final Plans and Specifications |
| 09/25/95 | 09/23/95 | (09/25/95) | (09/25/95) | 3870 | Omissions/Errors Check (OEC) Meeting |

## VERBAL CONTACT RECORD

**Control Section** 12345
**Job Number** 11111C
**Structure Number** S02
**Date** 07/31/95

Joe Engineer talked to Tom Myers and decided to use a 0.05'/ft super on ramp A leading into the bridge.

**ATTACHMENT I**
**CS 82073 - JN 87146C**
**M-85 from Springwells Street to Clark Street**
**City of Detroit**
**Wayne County**

## MDOT DESIGN VENDOR MANUAL

The MDOT Design Vendor Manual is now listed on the MDOT Bulletin Board System and can be found under the D_CONSLT Library. An index of the latest version of the task descriptions along with any revisions will be included as part of this authorization.

VENDORS are still encouraged to review and provide comment on the draft pages from the MDOT Design Vendor Manual. Please send suggestions to:

Katherine Hulley
Administrative Products Supervising Engineer
Design Division
Michigan Department of Transportation
425 West Ottawa
P.O. Box 30050
Lansing, MI 48909

## P/PMS TASK - INDEX - VERSION 2 rev 2

ISSUED 9/29/2000

| P/PMS TASK | CURRENT DATE | LATEST REVISION DATE |
|---|---|---|
| 3120 - CONDUCT STRUCTURE DECK CONDITION SURVEY | 07/29/99 | |
| 3330 - CONDUCT DESIGN SURVEY | 07/29/99 | |
| 3340 - CONDUCT STRUCTURE SURVEY | 07/29/99 | |
| 3350 - CONDUCT HYDRAULICS SURVEY | 07/29/99 | |
| 3360 - PREPARE BASE PLANS | 06/22/99 | |
| 3361 - REVIEW AND SUBMIT PRELIMINARY RIGHT OF WAY (PROW) PLANS | 07/16/99 | |
| 3370 - PREPARE STRUCTURE STUDY | 06/16/99 | |
| 3380 - REVIEW BASE PLANS | 06/29/99 | |
| 3390 - DEVELOP THE CONSTRUCTION ZONE TRAFFIC CONTROL CONCEPTS | 07/16/99 | |
| 3510 - PERFORM ROADWAY GEOTECHNICAL INVESTIGATION | 07/29/99 | |
| 3520 - CONDUCT HYDROLOGIC, HYDRAULIC AND SCOUR ANALYSES | 08/29/00 | revised per P. Schriner |
| 3530 - CONDUCT FOUNDATION STRUCTURE INVESTIGATION | 07/16/99 | |
| 3540 - DEVELOP CONSTRUCTION ZONE TRAFFIC CONTROL PLAN | 07/16/99 | |
| 3551 - DEVELOP/REVIEW PRELIMINARY TRAFFIC SIGNALS PLAN | 07/16/99 | added to index 1/5/2000 |
| 3552 - DEVELOP PRELIMINARY PERMANENT PAVEMENT MARKING PLAN | 07/16/99 | |
| 3553 - DEVELOP PRELIMINARY NON - FREEWAY SIGNING PLAN | 07/16/99 | |
| 3554 - DEVELOP PRELIMINARY FREEWAY SIGNING PLAN | 07/16/99 | |
| 3570 - PREPARE PRELIMINARY STRUCTURE PLANS | 07/16/99 | |
| 3580 - DEVELOP PRELIMINARY PLANS | 06/30/99 | |
| 3581 - FINAL RIGHT-OF-WAY PLANS | 07/16/99 | |
| 3590 - REVIEW PRELIMINARY PLANS | 06/29/99 | |
| 3670 - DEVELOP MUNICIPAL UTILITY PLANS | 06/30/99 | |
| 3675 - DEVELOP ELECTRICAL PLANS | 07/01/99 | |

| P/PMS TASK | CURRENT DATE | LATEST REVISION DATE |
|---|---|---|
| 3710 - DEVELOP REQUIRED MITIGATION (FOR INFORMATION ONLY, THIS IS NOT A VENDOR TASK) | 07/16/99 | |
| 3720 - SUBMIT ENVIRONMENTAL PERMIT APPLICATIONS (FOR INFORMATION ONLY, THIS IS NOT A VENDOR TASK) | 07/16/99 | |
| 3821 - COMPLETE/REVIEW TRAFFIC SIGNAL PLANS | 07/16/99 | |
| 3822 - COMPLETE PERMANENT PAVEMENT MARKING PLAN | 07/16/99 | |
| 3823 - COMPLETE NON-FREEWAY SIGNING PLAN | 07/16/99 | |
| 3824 - COMPLETE FREEWAY SIGNING PLAN | 07/16/99 | |
| 3830 - COMPLETE CONSTRUCTION ZONE TRAFFIC CONTROL PLAN | 06/22/99 | |
| 3840 - DEVELOP FINAL PLANS AND SPECIFICATIONS | 07/02/99 | |
| 3850 - DEVELOP STRUCTURE FINAL PLANS AND SPECIFICATIONS | 07/29/99 | |
| 3870 - HOLD OMISSIONS/ERRORS CHECK (OEC) MEETING | 07/13/99 | |
| 4120 - OBTAIN PRELIMINARY TITLE COMMITMENTS | 06/29/99 | |
| 4130 - PREPARE MARKED FINAL R.O.W. PLANS | 06/29/99 | |
| 4140 - PREPARE PROPERTY LEGAL INSTRUMENTS | 06/29/99 | |
| 5010 - CONSTRUCTION PHASE ENGINEERING ASSISTANCE | 07/29/99 | |